


Investitor	Naziv projekta	Projektant
	SEPARAT -TRETMAN OTPADNIH VODA-	

7.1 NASLOVNA STRANA

7 – PROJEKAT TEHNOLOGIJE

INVESTITOR: HANS GROHE d.o.o. Beograd
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OBJEKAT: III FAZA IZGRADNJE PROIZVODNOG KOMPLEKSA – DOGRADNJA
OBJEKTA ZA GALVANIZACIJU I KOŠARKAŠKOG TERENA ZA
REKREACIJU
Katastarska parcela br. 18722 K.O. Valjevo

ZA IZVOĐENJE RADOVA: DOGRADNJA

**VRSTA TEHNIČKE
DOKUMENTACIJE:** SEPARAT PROJEKTA TEHNOLOGIJE – Tretman otpadnih voda

**NAZIV I OZNAKA
DELA PROJEKTA:** PROJEKAT TEHNOLOGIJE – Sveska 7 – Tretman otpadnih voda

PROJEKTANT: KFG INDUSTRIAL GROUP d.o.o.
Vojvode Brane br. 45, 11 000 BEOGRAD
Licenca: Resenje br. 351-02-003259-2017-07 od 18.03.2021.
DEJAN KNEŽEVIĆ, MEng, Direktor



Potpis:

ODGOVORNI PROJEKTANT: DEJAN KNEŽEVIĆ, dipl.inž.teh.
BROJ LICENCE: Licenca br. 371 F406 07


Potpis:

MESTO I DATUM: BEOGRAD, Mart 2024. godine

Sveska	Poglavlje:	Revizija	Strana
7	7.5 – Tekstualna dokumentacija	1	1 od 43

Investitor	Naziv projekta	Projektant
	SEPARAT -TRETMAN OTPADNIH VODA-	

7.2. SADRŽAJ SEPARATA PROJEKTA TEHNOLOGIJE

7.1. NASLOVNA STRANA



7.2. SADRŽAJ SEPARATA PROJEKTA TEHNOLOGIJE

7.5. TEKSTUALNA DOKUMENTACIJA – TRETMAN OTPADNIH VODA

7.6. NUMERIČKA DOKUMENTACIJA – TRETMAN OTPADNIH VODA

7.7. GRAFIČKA DOKUMENTACIJA – TRETMAN OTPADNIH VODA

Sveska	Poglavlje:	Revizija	Strana
7	7.5 – Tekstualna dokumentacija	1	2 od 43

Investitor	Naziv projekta	Projektant
	SEPARAT -TRETMAN OTPADNIH VODA-	

TEKSTUALNA DOKUMENTACIJA
- TRETMAN OTPADNIH VODA -

Sveska	Poglavlje:	Revizija	Strana
7	7.5 – Tekstualna dokumentacija	1	3 od 43

Investitor	Naziv projekta	Projektant
	SEPARAT -TRETMAN OTPADNIH VODA-	

UVOD I SVRHA IZRADE

Predmetni Separata se odnosi na tretman otpadnih voda u okviru III faze izgradnje proizvodnog kompleksa – dogradnja objekta za galvanizaciju i košarkaškog terena za rekreaciju, koji se nalazi na katastarskoj parceli br. 18722 K.O. Valjevo. Tehnološki proces opisan u Idejnom projektu br. U 258 IDP 07.3, april 2023. izrađen od strane KFG Industrial group doo (NORTH Engineering doo), a usvojen od strane nadležnog ministarstva što je potvrđeno Izveštajem revizije komisije, zavodni broj: 350-01-01003/2023-07 od 19.09.2023., ostaje nepromenjen. Proces tretmana otpadnih se voda unapređuje kako bi se odgovorilo na zahtev Ministarstva Zaštite životne redine i granične vrednosti emisija zagađujućih materija (HPK, ukupne soli i sulfati) usaglasile sa propisanom Uredbom o graničnim vrednostima emisije zagađujućih materija u vodi i rokovima za njihovo dostizanje ("Sl. glasnik RS", br. 67/2011, 48/2012 i 1/2016).

Otpadna voda sa odeljenja galvanizacije se u okviru odeljenja za tretman otpadnih voda prerađuje do kvaliteta pogodnog za ispuštanje u kanalizaciju prema Zakonu Republike Srbije i Uredbi o graničnim vrednostima emisije zagađujućih materija u vodi i rokovima za njihovo dostizanje ("Sl. glasnik RS", br. 67/2011, 48/2012 i 1/2016). Granične vrednosti emisija prikazane su u numeričkoj dokumentaciji (7.6.4).

Unapređenje procesa sadrži dva nova koraka koji će biti opisani u tehničkom opisu, a slede nakon dehidracije mulja. Unapređenja procesa nema uticaj na dobijane saglasnosti i lokacijske uslove, kao ni na osnovne zahteve za objekat. U nastavku je opisan celokupan opis tretmana otpadnih voda radi lakšeg praćenja i razumevanja procesa, dodati i promenjeni delovi su jasno označeni u tekstu.

TEHNIČKI OPIS


Prečišćavanje otpadnih voda je prilagođeno pretmetnoj galvanizaciji. Ovo specijalno postrojenje je projektovano da tretira količinu otpadnih voda proizvedenih u definisanim vremenskim periodima u skladu sa važećim graničnim vrednostima propisanih od strane Republike Srbije. Otpadne vode proizvedene u postrojenju prepumpavaju se preko prepumpnih stanica do pogona za tretman otpadnih voda u okviru fabrike.

- Celokupan proces se izvodi potpuno automatski bez stalne interakcije zaposlenih.
- Svi tankovi su povezani sa odisisnim sistemom i uključujući filter prese za mulj (nakon tretmana).

Tretman otpadnih voda možemo podeliti u dva režima rada - proizvodni i period održavanja.

Kod proizvodnog režima rada, pogon zahteva određenu količinu procesne ili gradske vode za procese ispiranja i približno proizvodi istu količinu otpadnih voda. Gradska voda koja se koristi za ispiranje se filtrira u okviru odeljenja za tretman otpadnih voda. Procesna voda je demineralizovana voda generisana takođe u okviru pomenutog odeljenja i dobija se procesom reverzne osmoze.

Sveska	Poglavlje:	Revizija	Strana
7	7.5 – Tekstualna dokumentacija	1	4 od 43

Investitor	Naziv projekta	Projektant
	SEPARAT -TRETMAN OTPADNIH VODA-	

U periodu održavanja, istrošena kupatila i voda iz kaskada za ispiranje se menjaju, tako da se otpadni elektroliti (tzv. koncentracije) transportuju preko zasebnih pumpnih vodova u tankove za prihvatanje otpadnih elektrolita. Otpadni elektroliti se tretiraju u istim šaržnim tankovima kao i otpadna voda sa ispiranja samo se doziraju u određenim procentima kako bi se izbegla opterećenja. Hemijski tretman otpadnih voda je projektovan tako da se prilagođava svakoj šarži.

U tabeli 1 su prikazane vrste otpadnih voda prema hemijskom sastavu, njihovi prihvatni taknovi i tip tretmana koji se primenjuje.

Procesna šema celog procesa tretmana otpadnih voda se nalazi u grafičkoj dokumentaciji.

Sveska	Poglavlje:	Revizija	Strana
7	7.5 – Tekstualna dokumentacija	1	5 od 43

Investitor

Naziv projekta

Projektant



SEPARAT
-TRETMAN OTPADNIH VODA-



Tabela 1 Prikaz vrsti otpadnih voda koje nastaju u procesu galvanizacije i njihovih tretmana

TIP OTPADNE VODE	Alkalna otpadna voda sa ispiranja i otpadni alkalni elektroliti	Otpadna voda sa ispiranja koja sadrži cijanidne i bakarne jone	Kiselna otpadna voda sa ispiranja i polu koncentracije	Kiselna otpadna voda sa ispiranja i otpadni kiseli elektroliti	Otpadna voda sa ispiranja koja sadrži niklove jone	Kiselna otpadna voda sa ispiranja koja sadrži bakarne jone	Otpadna voda koja sadrži komplekse hroma (CrIII)
PRIHVATNI TANK	B1 / B8.1 / B8.5	B5 / B8.2	B2	B2 / B8.3	B4	B6	B3
TIP TRETMANA	Neutralizacija	Oksidacija i dalja neutralizacija u B1.3/B2.1	Neutralizacija	Neutralizacija			Oksidacija, redukcija, neutralizacija
ŠARŽNI TANK	B1.3	B5.1	B2.1	B2.2			B3.1
DEHIDRATACIJA MULJA	KOMORNE FILTER PRESE						
ISPARVANJE*	VAKUUMSKI ISPARIVAČ						
KRISTALIZACIJA*	KRISTALIZATOR						

*Unapređenje procesa tretmana otpadnih voda

Sveska	Poglavlje:	Revizija	Strana
7	7.5 – Tekstualna dokumentacija	1	6 od 43

Sirovine potrebnih za tretman otpadnih voda i njihovo držanje

Prilikom hemijskog tetmana otpadnih voda se koriste određene hemikalije kako bi se zagađujuće materije neutralisale, oksidovale ili redukovale. Hemikalije koje se koriste se skladište u okviru odeljenja za tretman otpadnih voda pod strogo kontrolisanim uslovima. Skladište se u zatvorenim rezervoarima različitih zapremina koji su izrađeni od hemijski rezistetnog materijala (PP-H ili PE) ili IBC rezervoarima pogodnim za manje količine (Tabele 2 i 3). Rezervoari za skladištenje svih hemikalija su nepropusni, obezbeđeni redovnom kontrolom, potrebnom signalizacijom u slučaju kvara ili procurivanja. Za ugrađene rezervoare Investitor mora da obezbedi potrebne ateste.

Hemikalije se doziraju pomoću dozirnih pumpi direktno u odgovarajući tretman. Svi IBC rezervoari imaju prihvatnu tankvanu zapremine takve da se prihvati celokupna količina u slučaju izlivanja što je u skladu sa Mišljenjem u postupku izdavanja vodnih uslova broj 7151/1 od 24. 7. 2022. Izdatog od strane Javnog vodoprivrednog preduzeća Srbijavode- Vodoprivredni cenar Sava-Duna, Novi Beograd (tačka 3.20). Opremljeni su brizim spojevima (eng. *Quick-Connect*) i PIN kodiranjem za lakšu kontrolu i upravljanje doziranjem hemikalija. Za sve uskladištene hemikalije se MSDS liste nalaze u numeričkoj dokumentaciji.

Tabela 2 Lista IBC rezervoara za skladištenje hemikalija

Oznaka	Medijum	Zapremina [m³]
BC4	H ₂ O ₂ (vodonik peroksid)	1
BC5	37% FeCl ₃ (gvožđe(III) hlorid)	1
BC8	Agens za razgradnju kompleksnih soli <i>Complex splitting agent</i>	1
BC11	NaHSO ₃ (natrijum hidrogensulfat)	1

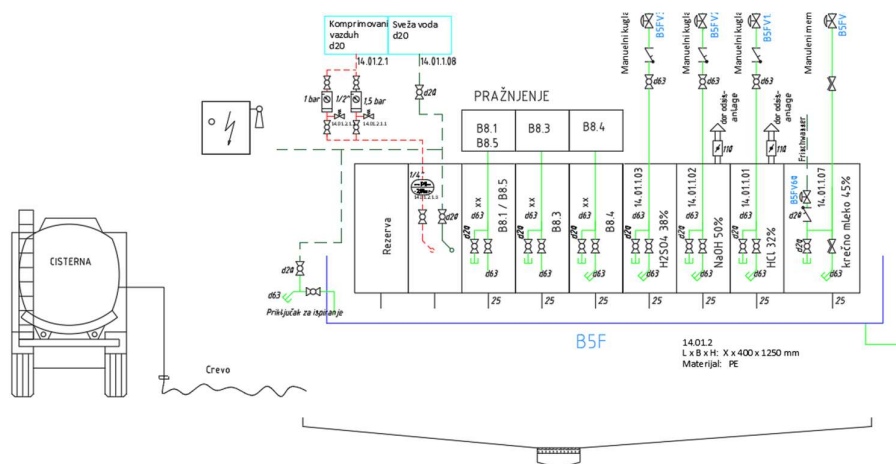
Tabela 3 Lista rezervoara za skladištenje hemikalija; PE- polietilen

Oznaka	Medijum	Zapremina[m³]	Materijal	Verzija	Dodatna oprema
BC1.1	Krečno mleko do 45%	10	PE	duplozidni	Kontrola nivoa, mešalica
BC2	30% HCl (hlorovodonična kiselina)	10	PE	duplozidni	Kontrola nivoa
BC3	50% NaOH (natrijum-hidroksid)	10	PE	duplozidni	Kontrola nivoa

Sveska	Projekat:	Revizija	Datum
7	IDP – IDEJNI PROJEKAT	1	Mart 2024.

BC6	Flokulant (FHM)	0,5	PE		Kontrola nivoa, mešalica
BC7	Flokulant (FHM) 0,1%	0,5	PE		Kontrola nivoa, mešalica
BC9	H ₂ SO ₄ max 60% (sumprona kiselina)	10	PE	duplozidni	Kontrola nivoa
BC10	Precipitant (FM) čvrst	-	PE		
BC12	Antiskalant	0,03	PE		

Stanica za pretakanje hemikalija





Slika 1 Stanica za punjenje i pražnjenje (desno)

Neke od hemikalija navedenih u tabeli 2 će se dopremiti kamionskim cisternama. Proizvodni kompleks poseduje stanicu za pretakanje hemikalija iz cisterni i njihov transport do mesta za skladištenje, kao i za transport i pretakanje otpadnih elektrolita koje će se tretirati i skladištiti eksterno. Stanica za pretakanje hemikalija je projektovana tako da bude hemijski rezistentna. Za svaki medijum je obezbeđen poseban priključak na tanker i hemijski otporan cevovod do odgovarajućeg rezervoara za skladištenje. Stanica za pretakanje se nalazi van objekta na južnoj fasadi odeljenja galvanizacije i poseduje zasebnu tankvanu. Položaj je prikazan u grafičkoj dokumentaciji – oznaka PL0.15.

Pomoću stanice za pretakanje se otpadni elektroliti koji sadrže hrom, sulfate i pastu za poliranje u malim koncentracijama i ne mogu da se prerade u okviru postrojenja za tretman otpadnih voda, transportuju do eksternih partnera gde će se dalje skladištiti i tretirati. Pasta za poliranje potiče od procesa poliranja koja je u tragovima ostala na predmetu (proces poliranja nije predmet ovog projekta). Otpadni elektroliti se predaju pravnom licu koje ima licencu za upravljanjem i skladištenjem takvom vrstom otpada u okviru Republike Srbije.

Proces punjenja se kontroliše kontrolom nivoa skladišnih tankova, a transport do njih se vrši automatski, hemijski otpornim cevovodima bez mogućnosti curenja. Iznad stanice se nalazi nadstrešnica kako atmosferska pražnjenja ne bi uticala na spiranje mogućih polutanata u okolinu. Stanica za punjenje je opremljena prihvatnom tankavanom tako da ne dođe do izlivanja opasnih hemikalija u okolinu ukoliko dođe do kapanja prilikom procesa pretakanja. Kako hemikalije koje se pretaču nisu zapaljive niti potpomažu gorenje, ovo pretakanje ne predstavlja zonu opasnosti.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	9 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

U tabeli 4 navedene su hemikalije koje se dopremaju i otpremaju na opisan način.

Tabela 4 Stanica za punjenje i pražnjenje

Punjenje/ Pražnjenje	Medijum	Punjenje tanka / pražnjenje tanka	Zapremina rezervoara [m ³]
Punjenje	HCl	BC2	10
Punjenje	NaOH	BC3	10
Punjenje	H ₂ SO ₄	BC9	10
Punjenje	Krečno mleko	BC1	10
Pražnjenje	Otpadni alkalni elektrolit	B8.1/B8.5	30
Pražnjenje	Otpadni kiseli elektrolit	B8.3	30
Pražnjenje	Otpadna voda koja sadrži mali procenat paste za poliranje	B8.4	10

Tretman otpadnih voda

1. Prepumpne stanice

Prepumpne stanice se nalaze u odeljenju galvanizacije i čine vezu između odeljenja galvanizacije i postrojenja za tretman otpadnih voda. Maksimalni nivo punjenja stanica je identičan zapremini kade za koju služi. Kontinualna otpadna voda- voda sa ispiranja se akumulira u prepumnim stanicama i nakon dostizanja određenog nivoa (određen tako da ne može doći do preliivanja) se transportuje do prihvatnih tankova za otpadnu vodu u okviru odeljenja za tretman otpadnih voda.

U tabeli 5 su navedene sve prepumne stanice. Sve su opremljene kontrolom nivoa i odsisom za otpadni vazduh.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	10 od 43

Tabela 5 Oznake prepurnih stanica sa karakteristikama (MS- otpadna voda sa galvanizacije predmeta od mesinga, ZnDG- otpadna voda sa galvanizacije predmeta od cinka)

Oznaka	Medijum	Sledćei korak	Kol. [m ³]	Materijal	Max. t [°C]	Tip	Dodaci
B01.1.1 B01.1.2	MS: Otpadna voda sa ispiranja, pH > 7	B1	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B01.2	ZnDG: Otpadna voda sa ispiranja, pH > 7	B1	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B02.1.1 B02.1.2	MS: Otpadna voda sa ispiranja, pH < 7	B2	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B02.2.1 B02.2.2	ZnDG: Otpadna voda sa ispiranja, pH < 7	B2	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B03.1	MS: Otpadna voda sa ispiranja koja sadrži komplekse hrom III	B3	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B03.2	ZnDG: Otpadna voda sa ispiranja koja sadrži komplekse hrom III	B3	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B04.1	MS: Otpadna voda sa ispiranja, pH < 7 - niklovi joni	B4	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B04.2	ZnDG: Otpadna voda sa ispiranja, pH < 7 - niklovi joni	B4	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B05	ZnDG: Otpadna voda sa ispiranja, pH > 7, sadrži bakarne i cijanidne jone	B5	1	PE	35°C	Zatvoren	Kontrola nivoa i konekcija na odsis
B06	ZnDG: Otpadna voda sa ispiranja, pH < 7 copper	B6	1	PE	30°C	Zatvoren	Kontrola nivoa i konekcija na odsis

B07.1.1	MS: IAT 1recirkulat- toplo ispiranje	B7.1.2	1	PE	50°C	Zatvoren	Kontrola nivoa
B07.1.2	ZnDG: IAT I recirkulat- toplo ispiranje	B7.1.1	1	PE	50°C	Zatvoren	Kontrola nivoa
B07.2	IAT II recirkulat- demetalizacija	B7.2.1	1	PE	40°C	Zatvoren	Kontrola nivoa
B15.3	RO koncentrat	B12	1	PE	20°C	Zatvoren	Kontrola nivoa

2. Prihvatni tankovi za otpadnu vodu

U predviđenom postrojenju za prečišćavanje otpadnih voda postoje dve različite vrste prihvatnih tankova. Tankovi za vodu sa ispiranja i tankovi za otpadne elektrolite koji se pune u periodima održavanja. Otpadna voda koja se transportuje sa prepumpnih stanica, ili u režimu održavanja sa direktne pumpne linije, sakuplja se u različitim prihvatnim tankovima (u zavisnosti od hemijske prirode otpadne vode) i transportuje se u šaržne tanke. Otpadni elektroliti se doziraju u malim procentima otpadnoj vodi koja prolazi tretman, kako bi se izbegla velika opterećenja. Regenerati iz sistema izmenjivača jona se takođe transportuju u određeni prihvatni tank. Svi prihvatni tankovi su izrađeni od polipropilena (PE) i opremljeni kontrolom nivoa tečnosti, odsisom za otpadni vazduh i slavinom za uzorkovanje. Tankovi su zatvorenog tipa, ali poseduju otvore za održavanje.

Tabela 6 Prihvatni tankovi za otpadne vode

Oznaka	Medijum	Sledćei korak	Količina [m ³]	Materijal	Max. t [°C]	Tip	Dodaci
B1	Otpadna voda sa ispiranja, pH > 7	B1.3	36	PE	35 °C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B2	Otpadna voda sa ispiranja, pH < 7	B2.1	36	PE	35°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B3	Otpadna voda sa ispiranja, pH < 7 koja sadrži komplekse hrom (III)	B 3.1	30	PE	35°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B4	Otpadna voda sa ispiranja, pH < 7, sadrži Ni jone	B2.2	20	PE	35°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis

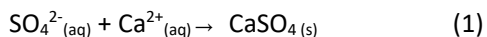
B5	Otpadna voda sa ispiranja, pH > 7, koja sadrži Cu i CN jone	B5.1	10	PE	35°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B6	Otpadna voda sa ispiranja, pH < 7, sadrži Cu jone	B2.2	10	PE	30°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B8.1	Otpadni alkalni elektrolit	B3.1 - mogućnost eksternog ispuštanja	30	PE	40°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B8.2	Otpadni alkalni elektrolit koji sadrži Cu i CN jone	B5.1	10	PE	30°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B8.3	Otpadni kiseli elektrolit	B2.2 - mogućnost eksternog ispuštanja	30	PE	30°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
B8.4	Otpadni elektrolit sa neznatnom koncentracijom paste za poliranje	Eksterno odlaganje i tretiranje	10	PP	65°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis
		ILI:					
Tretman u B1.3 ako je primenjivo (analiza i testiranje otpadne vode vrši se <i>in situ</i>)							
B8.5	Otpadni alkalni elektrolit	B1.3 - mogućnost eksternog odlaganja i tretmana	30	PP	75°C	Zatvoren	Kontrola nivoa sa zaštitom prelivanja i konekcija na odsis

3. Šaržni tankovi za tretman otpadnih voda

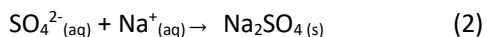
Otpadna voda se tretira u sedam različitih. Svi procesi se izvode automatski i kontrolišu praćenjem pH vrednosti i COD (hemijska potrošnja kiseonika). Program se prilagođava odgovarajućoj seriji otpadnih voda. Prema tome, objašnjeni koraci predstavljaju opšte specifikacije tretmana, ali one mogu odstupati u zavisnosti od šarže. Pojedinačni koraci tretmana se mogu menjati po svom redosledu, povremeno se neki koraci mogu izostaviti ili dopuniti da bi se dobio kvalitet vode koji je zadovoljavajući.

Korekcija količine sulfata u otpadnoj vodi

Za otpadnu vodu koja sadrži sulfatne jone primenjuje se postupak sa krečnim mlekom. Da bi se smanjila koncentracija sulfata u otpadnoj vodi primenjuje se hemijska precipitacija krečnim mlekom (kalcijum-hidroksidom $\text{Ca}(\text{OH})_2$).



Sulfati se talože u obliku kalcijum-sulfata i tako se „uklanja“ iz vode (reakcija 1). Granica rastvorljivosti kalcijum sulfata je teoretski 2,4 g/l na 20°C. Tako se kalcijum-sulfat disocira i rastvara u koncentraciji < 2,4 g/l, kada prekorači granica rastvorljivosti, kalcijum-sulfat precipitira kao čvrsta supstanca. Teoretska granica rastvorljivosti u stvarnim postrojenjima za otpadne vode. Iskustvo je pokazalo da je stvarna granica rastvorljivosti veća. Ukoliko postoji prisustvo natrijumovih jona, dešava se i sledeća reakcija:

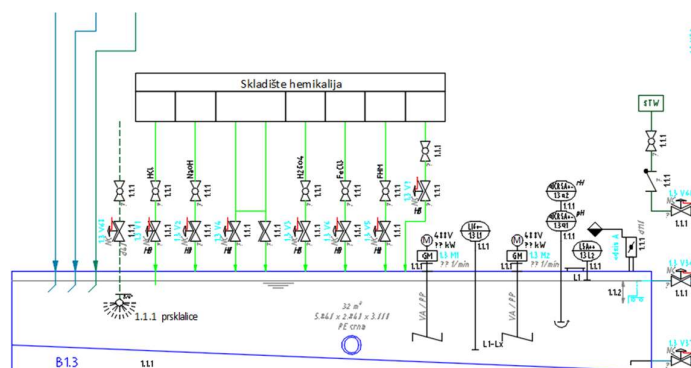


Sulfat se može istaložiti u obliku natrijum-sulfata, ali je rastvorljivost natrijum-sulfata mnogo veća od kalcijum-sulfata.

Tretman otpadnih alkalnih voda sa ispiranja i alkalnih koncentrata



Tip tretmana- neutralizacija

Oznaka šaržnog tanka- B1.3



Slika 2 PID tanka za neutralizaciju- B 1.3

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	14 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

Rezervoar B1.3 sadrži 32 m³, zatvoren je, opremljen kosim dnom i povezan je na sistem odsisavanja i tretmana otpadnog vazduha. Pored dve mešalice, tank ima opciju uzorkovanja kao i kontrolu nivoa tečnosti i pH.

Procesni koraci:

1. Alkalne otpadne vode sa ispiranja se prelivaju u prepumpne stanice B01.1 i B01.2 (tabela 5). Odatle se transportuju do prihvatnog tanka B1 (tabela 6) pomoću pumpi. Alternativno, obezbeđen je direktan vod od galanizacijskih kada do odgovarajućeg prihvatnog tanka prilikom istakanja otpadnog elektrolita tokom održavanja ili servisiranja. Alkalni regenerati sistema jonske razmene takođe se ulivaju u prihvatne tankove. Koncentrati (otpadni elektroliti) se ispuštaju u određenim intervalima u tankove B8.1, B8.4 i B8.5. Ovi koncentrati imaju direktan vod od galanizacijskih kada do odgovarajućeg prihvatnog tanka i ne prolaze kroz prepumpne stanice.
2. Od prihvatnog tanka B1, otpadna voda se prepumpava u šaržni tank B 1.3 po šaržama od po 32 m³. Otpadni elektroliti se doziraju proporcionalno u svaku šaržu tako da se postigne što homogenija koncentracija.
3. pH-regulisana neutralizacija:
 - Za korekciju pH vrednosti doziraju se NaOH i HCl
 - FeCl₃ se koristi kao percipitant
 - Ukoliko je potrebno, dodaje se agens za razgradnju kompleksnih soli
 - Nakon definisanog vremena reakcije, krečno mleko, natrijum-hidroksid, ukoliko je potrebno i flokulanti se dodaju
 - Nakon daljeg, definisanog vremena sedimentacije, tanak sloj mulja se formira na dnu tanka, a tretirana voda se izdvaja u gornjoj fazi. Tretirana voda se transportuje do tanka B11.1 i kontinualno se meri njena zamućenost da ukoliko pređe propisanu granicu, sistem isključuje dalji transport i ostatak vode se transportuje do tankova za mulj B1.4 i B2.3 i dalje na dehidrataciju.

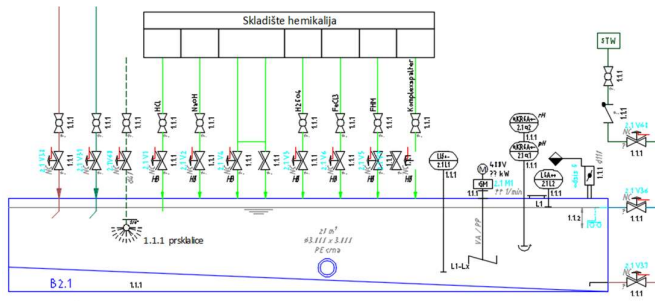
Zaostali mulj u tanku B1.3 se ispira prskalicom.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	15 od 43

Tretman kiselih otpadnih voda sa ispiranja i otpadnih kiselih elektrolita

Tip tretmana - neutralizacija

Oznaka šaržnog tanka- B 2.1



Slika 3 PID tanka za neutralizaciju- B 2.1

Šaržni tank za neutralizaciju B2.1 ima zapreminu od 20m³ (Slika 5). Tank je zatvoren, opremljeni kosim dnom i povezan na sistem za odsis i tretman otpadnog vazduha. Pored mešalice, tank ima opciju uzorkovanja, kontrolu nivoa i pH vrednosti.

Procesni koraci:

1. Kisele i sulfatne vode sa ispiranja se prelivaju u prepumpne stanice B02.1 i B0 2.2 (tabela 3). Odatle se transportuju do prihvatnog tanka B2 pomoću napojnih pumpi. Alternativno, obezbeđen je direktan vod od galanizacijskih kada do odgovarajućeg prihvatnog tanka prilikom istakanja otpadnog elektrolita tokom održavanja ili servisiranja. U prihvatni tank se takođe ulivaju kiseli regenerati sistema jonske razmene, voda iz završne pH kontrole (koje imaju niži pH od propisanog).

2. Dalje se otpadne vode transportuju do šaržnog tanka B2.1 i tretiraju po šaržama od po 20m³.

3. pH regulisana neutralizacija:

- Dodaje se NaOH ili krečno mleko za neutralizaciju

- Dodaje se inicijalno FeCl₃ kao percipitant

- Nakon određenog vremena, vrši se analiza pH vrednosti i ako je ona u propisanim granicama, dodaje se flokulant FHM u šaržu

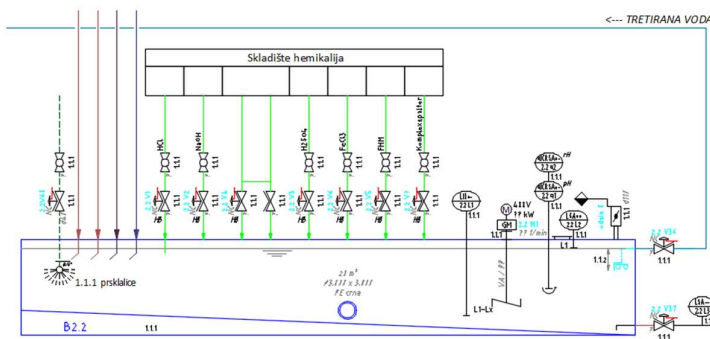
Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	16 od 43

- Nakon daljeg, definisanog vremena sedimentacije, tanak sloj mulja se formira na dnu tanka, a tretirana voda se izdvaja u gornjoj fazi. Tretirana voda se transportuje do tanka B11.1 i kontinualno se meri njena zamućenost da ukoliko pređe propisanu granicu, sistem isključuje dalji transport i ostatak vode se transportuje do tankova za mulj- B1.4 i B2.3 i dalje na dehidrataciju.

Zaostali mulj u tanku B2.1 se ispira prskskalicom.

Tip tretmana - neutralizacija

Oznaka šaržnog tanka- B 2.2



Slika 4 Tank za neutralizaciju- B 2.2

Tretman kiselih koncentrata se obavlja u tanku B 2.2 prema sledećim koracima:

1. U šaržni proces B2.2 dovode se otpadne vode iz prihvatnog tanka B2. Alternativno, obezbeđen je direktan vod od galanizacijskih kada do odgovarajućeg prihvatnog tanka prilikom istakanja otpadnog elektrolita tokom održavanja ili servisiranja- B6 i B8.3. U prihvatni tank se takođe ulivaju kiseli regenerati sistema jonske razmene, voda iz završne pH kontrole (koje imaju niži pH od propisanog). Koncentrati (otpadni elektroliti) se ispuštaju u određenim intervalima u tankove B8.3. Ovi koncentrati imaju direktan vod od galanizacijskih kada do odgovarajućeg prihvatnog tanka i ne prolaze kroz prepumpne stanice.

2. Dalje se otpadne vode transportuju do šaržnog tanka B2.2 i tretiraju po šaržama od po 20m³.

3. pH regulisana neutralizacija:

- Dodaje se NaOH ili krečno mleko za neutralizaciju

- Dodaje se inicijalno FeCl₃ kao percipitant

- Nakon određenog vremena, vrši se analiza pH vrednosti i ako je ona u propisanim granicama, dodaje se flokulant FHM u šaržu

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	17 od 43

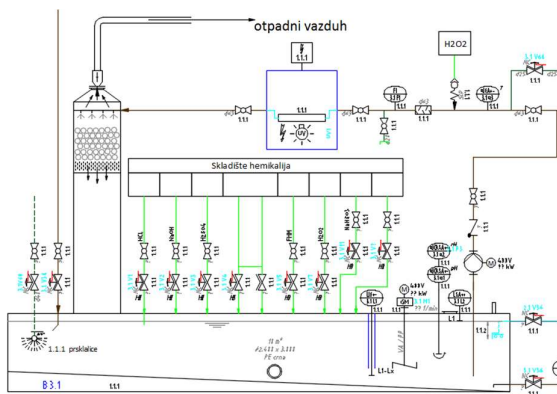
- Nakon daljeg, definisanog vremena sedimentacije, tanak sloj mulja se formira na dnu tanka, a tretirana voda se izdvaja u gornjoj fazi. Tretirana voda se transportuje do tanka B11.1 i kontinualno se meri njena zamućenost da ukoliko pređe propisanu granicu, sistem isključuje dalji transport i ostatak vode se transportuje do tankova za mulj- B1.4 i B2.3 i dalje na dehidrataciju.

Zaostali mulj u tanku B2.2 se ispira prskskalicom.

Tretman otpadnih voda koje sadrže Cr^{3+}

Tip tretmana: oksidacija, redukcija, neutralizacija

Oznaka šaržnog tanka: B 3.1



Slika 5 PID tanka za tretman otpadne vode koja sadrži jone trovalentnog hroma- B 3.1

Šaržni tank za tretman otpadne vode koja sadrži Cr^{3+} jone ima zapreminu od 10m^3 (Slika 5). Tank je zatvoren, opremljen kosim dnom i povezan je na sistem za odsis i tretman otpadnog vazduha. Pored mešalice, tank poseduje slavinu za uzorkovanje, kontrolu nivoa tečnosti u tanku i pH vrednosti.

Za uklanjanje trovalentnog hroma izabrane je kombinovana metoda koja uključuje oksidaciju trovalentnog hroma do šestovalentnog i naknadna redukcija pa taloženje trovalentnog hroma u obliku hidroksida.

Procesni koraci:

1. Otpadna voda koja sadrži jone trovalentnog hroma se direktno preliva u prepumpnu stanicu B 03.1 i B 03.2 (tabela 3). Odatle se prepumpavaju do privatnog tanka B3. Alternativno, tokom održavanja ili servisiranja kada za galvanizaciju, otpadna voda može direktno da se prebaci u prihvatni tank B3 zapremine od 30 m^3 .
2. Od prihvatnog tanka, otpadna voda se po šaržama od po 10 m^3 . Takođe, regenerati sa jonoizmenjivača sa galvanizacije hromom se tretiraju u ovim postupkom.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	18 od 43

3. Otpadna voda sa hromiranja sadrži kompleksne soli koje onemogućavaju taloženje, zato se prvi korak u tretmanu bazira na degradaciji kompleksnih jedinjenja. Ovo se postiže dejstvom UV svetla i vodonik peroksidom.

- Incijalno se u šaržu dodaje FeCl_3 za percipitaciju i dodaju se kiselina/baza da se reguliše pH vrednost

- Vrší se oksidacija otpadne vode vodonik-peroksidom uz UV svetlo kao katalizator procesa. UV svetlo aktivira vodonik-peroksid i nastaju hidroksilni radikali koji su jako oksidaciono sredstvo. Reakcija se vrši u pakovanom sloju kako bi se povećala efikasnost procesa. Za sloj se koriste kuglice od inertnog materijala.

- Kako bi se izvršila naknadna redukcija, dodaje se natrijum hidrogensulfit u šaržni proces.

Za regulacija pH koriste se NaOH ili krečno mleko i nakon određenog vremena reakcije se pH proverava

-Ukoliko je pH u optimalnom opsegu dodaju se flokulanti FHM i dolazi do sedimentacije

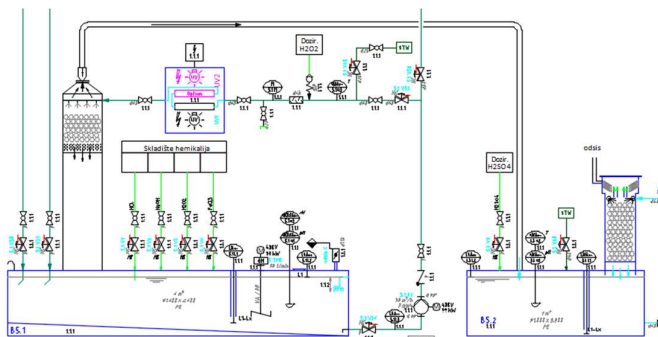
- Nakon daljeg, definisanog vremena sedimentacije, tanak sloj mulja se formira na dnu tanka, a tretirana voda se izdvaja u gornjoj fazi. Tretirana voda se transportuje do tanka B11.1 i kontinualno se meri njena zamućenost da ukoliko pređe propisanu granicu, sistem isključuje dalji transport i ostatak vode se transportuje do tankova za mulj- B1.4 i B2.3 i dalje na dehidrataciju.

Zaostali mulj u tanku B3.1 se ispira prskskalicom.

Tretman otpadnih voda koje sadrže cijanidne i bakarne jone

Tip tretmana: oksidacija

Oznaka šaržnog tanka: B 5.1



Slika 6 Rezervoar za tretman otpadnih voda koje sadrže cijanidne i bakarne jone- B 5.1

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	19 od 43

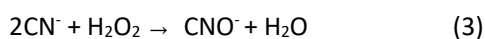
Rezervoar B 5.1 ima zapreminu od 6 m³, opremljen je poklopcem, kosim dnom i priključkom na sistem za odsis otpadnog vazduha. Pored mešalice, tank poseduje slavinu za uzorkovanje, kontrolu nivoa tečnosti u tanku i pH vrednosti.

Procesni koraci:

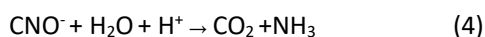
1. Otpadna voda se preliva u prepumpnu stanicu B05 u odeljenju galvanizacije i odatle se transportuje u prihvatnih tank B5 (10 m³).
2. Iz tanka B5, otpadna voda sa cijanidnim jonima se prebacuje u šaržni tank B 5.1 po 5 m³ (Slika 6). Takođe, otpadni elektroliti iz B8.3 se u određenim porcijama dodaju šarži.
3. U tanku B 5.1 se otpadna voda tretira na sledeći način:

- Na početku se pH medijuma podigne doziranjem baza (NaOH ili krečno mleko) do pH=9-10 kako ne bi došlo do izdavanja cijanovodonične kiseline (HCN) u obliku gasa

- Nakon toga, u recirkulaciji pomoću pakovane kolone se vrši oksidacija cijanidnog jona do cijanata (reakcija 3). Za ovu svrhu se koristi vodonik peroksid primenom UV zraka zbog veće efikasnosti oksidacije. U koloni sa pakovanim slojem se povećava kontaktna površina i tako povećava brzina reakcije. Odsis kolone je spojen sa tankom B5.2.



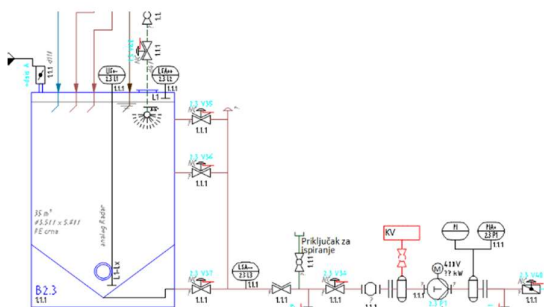
- Uzorkovanjem i kasnijom analizom se proverava završetak reakcije. Tretirana voda se transportuje u sledeći tank B5.2 preko pakovanog sloja i dalje tretira dodatkom sumporne kiseline. U kiseloj sredini joni cijanata preleze do amonijaka i ugljen-dioksida (reakcija 4).



- Nakon kompletne oksidacije, voda se transportuje do tankova za neutralizaciju B1.3 i B2.1.

Tretman mulja – dehidratacija

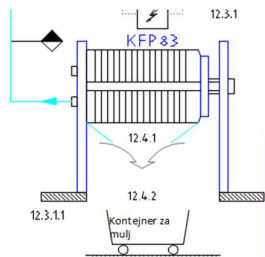
Mulj iz šaržnih tankova se transportuje do tankova za mulj (taložnika) B1.4 i B2.3 (Slika 7).



Slika 7 Tank za mulj

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	20 od 43

Odatle se tanak mulj transportuje do komornih filter presa klipnom pumpom i pod pritiskom se filtrira. Kada se komorne filter prese napune toliko da nema zadovoljavajućeg efekta filtracije, prese se prazne/čiste od filterske pogače. Dehidriran mulj (sadrži oko 70% vlage) se sakuplja u metalnim kontejnerima od po 1,5 m³ i odlaze kao opasan otpad.



Slika 8 Komorna filter presa

Mulj se privremeno skladišti u okviru kompleksa kao opasan otpad pod klasifikacionim kodom 11 01 09*. Galvanizacijski mulje se dalje predaje eksternim pravnim licima koji poseduju ovlašćenje za rukovanje u zbrinjavanje ove vrste otpada u skladu sa Zakonima Republike Srbije.

Bistri filtrat se odvaja i transportuje nazad do tankova za mulj.

UNAPREĐENJE PROCESA

Korak 1: Prikupljanje i priprema

Bistra otpadna voda iz šaržnih tankova odvaja i prikuplja se u tankovima B16.0.1 i B16.0.2 od po 20 m³. Nakon korekcije pH, otpadna voda se transportuje do vakuuum isparivača.

2. korak: Vakuuum isparivač

Nakon vakuuum isparivača generišu se dve linije:

- (i) linija destilata, koji ne sadrži ili sadrži minimalne količine soli i organskih materija
- (ii) linija koncentrata, koji sadrži visoke koncentracije soli i organskih materija.

Koncentrat se sakuplja (B16.2.1) i dalje obrađuje u kristalizatoru, dok se destilat vraća u postrojenje za završni tretman otpadnih voda (B16.3.1).

Opis rada vakuuum isparivača: Vakuumska pumpa generiše vakuum od približno 600 mbar unutar isparivača. U skladu sa tim, ovaj vakuum se koristi za usisavanje otpadnih voda u sistem isparavanja. Zbog vakuuma, isparavanje vode se dešava na već 85°C. U procesu se generiše voda para i temperatura isparenja se povećava usled kompresije do 120 °C. Nastala toplota se koristi za razmenjivač toplote. Destilata se dodatno hladi unutar razmenjivača toplote, a napojna otpadna voda se greje pre ulaska u vakuuum isparivač. Ovaj proces traje nekoliko sati.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	21 od 43

Ovaj procesni korak je opremljen kiselim i alkalnim čistačima i jedinicom za doziranje anti penušavaca kako bi se sprečilo formiranje pene (defoam jedinica).

Korak 3: Kristalizator

Toplotni vakuumski kristalizator je prilagođen da smanji količinu soli u otpadnoj vodi. Kristalizator je automatski komad opreme koji ne zahteva učešće zaposlenih.

Koncentrat iz koraka 2 dalje obrađuje u koraku 3. Kristalizacija predstavlja proces separacije koji je zasnovan na različitim temperaturama ključanja. Opšti cilj procesa je da se voda odvoji od njenih sastojaka koji imaju višu temperaturu ključanja. U cilju uštede energije primenjuje se vakuum koji smanjuje temperaturu ključanja na 50-70 °C. Kondenzat na izlazu ima temperaturu od 20-30 °C i vodi se nazad do završnog tretmana otpadnih voda. Koncentrat ima temperaturu od 50-70°C i veoma je viskozna. Odlaze se kao čvrst otpad pod oznakom 11 01 98 (Videti – Numerička dokumentacija – Klasifikacija otpada).

Da bi se sprečilo formiranje pene, antipenušavci se mogu dodati po potrebi. Kristalizator se čisti redovno i pre svakog sistema sa sredstvima za čišćenje kako bi se sprečilo oštećenje sistema.

Za rad sistema potrebna je topla voda, voda za hlađenje, komprimovani vazduh, električna struja i sredstva za čišćenje i sredstva protiv formiranja pene, kao što je pomenuto.

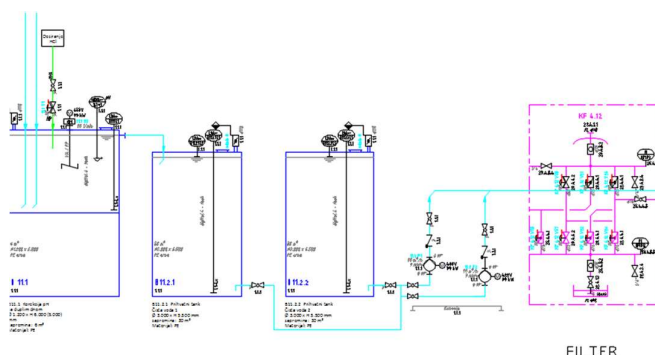
Završni tretman otpadnih voda

Svi generisani i tretirani filtrati iz komornih filter presa, destilat iz vakuum isparivača i kristalizatora se sakupljaju u tanku B 11.1. U ovom tanku se na početku snižava pH, a nakon toga se prepumpava kroz mehanički filter (sa šljunkom) do tanka B 11.2 i na samom kraju se vrši tretman jonoizmenjivačima.

Filter zadržava postojeće i nefiltrirane flokule hidroksida u vodi, dok završni izmenjivač vezuje metalne jone i obezbeđuje usklađenost sa graničnim vrednostima.

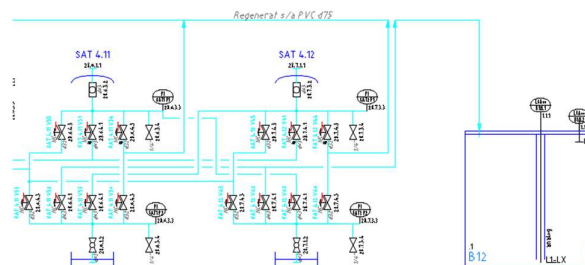
Sa povećanjem opterećenja filtera, raste otpor, a samim tim protok se smanjuje. Kada se detektuje ulazni pritisak na filteru, oglašava se alarm koji ukazuje na potrebu za povratnim ispiranjem vodom. Pored toga, sloj se rastesa vazduhom da bi se povećao efekat čišćenja. Voda za povratno ispiranje se dovodi u rezervoar za mulj B 2.3. Ako se filter ne ispere i pritisak se poveća, sistem se isključuje alarmom.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	22 od 43



Slika 9 Zaršno filtriranje

Jonoizmenjivanje se vrši sa dve katjonske kolone. Maksimalni učinak dva selektivna jonska izmenjivača je ukupno 10 m³/h. Korišćenjem ovih izmenjivača, koncentracija rastvorenih jona teških metala može da se smanji na veoma niske vrednosti, čak i u prisustvu relativno visokih koncentracija alkalnih i zemnoalkalnih jona. Smola koja se koristi je blago kisela smola za izmenjivanje katjona. Kada su kapaciteti smole smanjeni (utvrđuje se redovnim uzorkovanjem i analizama), izmenjivači se regenerišu hlorovodoničnom kiselinom (HCl) i natrijum-hidroksidom (NaOH). U ovom procesu regeneracije, teški metali vezani za izmenjivač se desorbuju i formira se rastvor bogat jonima metala, koji se vraća u tank B3.





Slika 10 PID finalnog tretmana otpadne vode

Nakon prolaska kroz postrojenje jonoizmenjivača, voda se sakuplja u tanku B12, pre nego što prođe kroz finalnu neutralizaciju u B13 (5 m³). U tanku B13, pH vrednost se podešava na potrebnu vrednost ispuštanja između 6,5 i 9,5 upotrebom HCl i NaOH i održava se.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	23 od 43



Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	24 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

NUMERIČKA DOKUMENTACIJA

- TRETMAN OTPADNIH VODA -

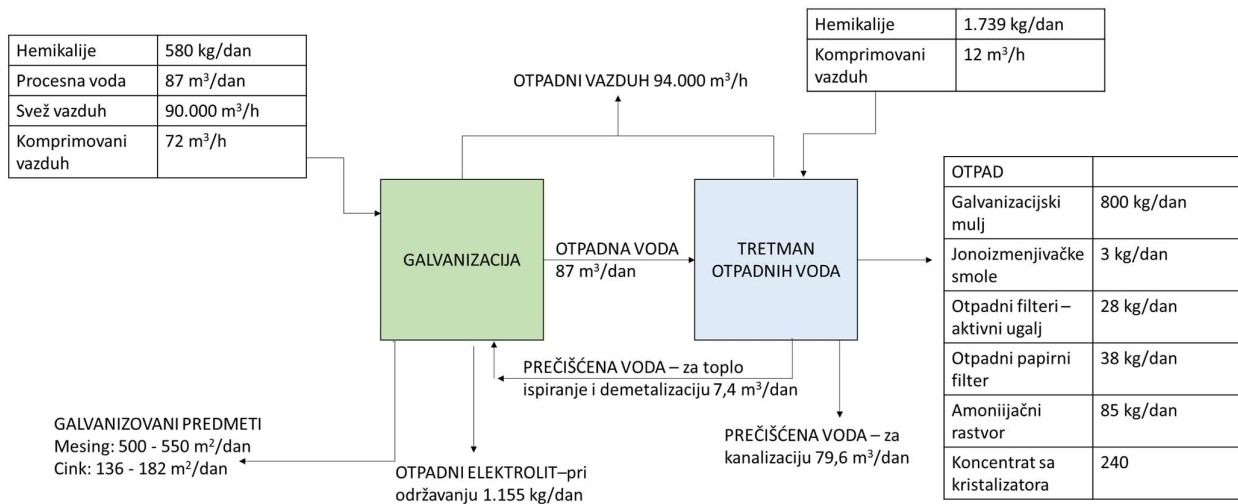
Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	25 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

NUMERIČKA DOKUMENTACIJA

PRILOG	D O K U M E N T
1	Materijalni i energetski bilans <ul style="list-style-type: none"> - Materijalni i energetski bilans - Bilans hemikalija koje se koriste u procesu - Materijalni bilans otpadnih voda
2	Karakteristike dodatne opreme
3	Klasifikacija otpadnih materija
4	Karakteristike otpadnih voda – očekivane vrednosti zagađujućih materija
5	MSDS

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	26 od 43

1. MATERIJALNI I ENERGETSKI BILANS


Energija potrebna za hlađenje u tretmanu otpadnih voda, MWh/d	0,6
Energija potrebna za napajanje opreme u tretmanu otpadnih voda, MWh/d	10,4
UKUPNO, MWh/d	11,0

Tabela 7 Energetski bilans

BILANS POTREBNIH HEMIKAJIJA ZA TRETMAN OTPADNIH VODA

Tabela 8 Potrošnja hemikalija na godišnjem i nedeljnom nivou

TRGOVAČKI NAZIV	Sastav i opis (opasne materije)	Način držanja	Godišnja potrošnja za odeljenje za tretman otpadnih voda, kg	Nedeljna potrošnja, kg
Natrijum-hidroksid 50 %	Natrijum-hidroksid 50 %	Cisterna	75.000	1.563
Gvožđe III fosfat	Gvožđe III fosfat	IBC 1200	42.000	875
Vodonik peroksid H ₂ O ₂ (30%)	Vodonik peroksid H ₂ O ₂ (30%)	IBC 1200	45.000	937,5
Sumporna kiselina H ₂ SO ₄ (38%)	Sumporna kiselina H ₂ SO ₄ (38%)	Cisterna	35.000	833
Hlorovodnična kiselina HCL (30%)	Hlorovodnična kiselina HCL (30%)	Cisterna	148.000	3.083
Fungicid, algicid	Smeša: 5-hloro-2-methyl-2H-izotiazol-3-on and 2-methyl-2H-isotiazol-3-one (3:1) (< 2%)	kanister	500	10
Krečno mleko (Ca(OH) ₂) 45%	Krečno mleko (Ca(OH) ₂) 45%	Cisterna	100.000	2.083
Omega MP 5152	Smeša: natrijum dimetilditiokarbamat (10-20 %), natrijum sulfid (10-20%), natrijum hidroksid (0,3-1%)	IBC 1200	7.200	150
Natrijum-hidrogensulfit, rastvor 38-40 %	Natrijum-hidrogensulfit, rastvor 38-40 %	IBC 1200	5.000	104
Aquafloc 01	Anjonski polimer rastvorljiv u vodi	Džak od 25 kg	5	0,1
Aquasorb 50	Alumijum sulfat (10-25%)	Džak od 25 kg	4.500	94
Everzit N	Ugljenik cca. 92,0 % Pepeo cca. 3,5 % Rastvor kiseline 0,18 %	Džak od 50 kg	2500	52,1





SEPARAT
- TRETMAN OTPADNIH VODA -



	(19% HCl)			
Aquaplex UO	Vodeni rastvor fosfino karboksilne kiseline: glutaraldehid (<0,1%)	kanister 25 kg	25	0,5
Gvožđe sulfat 12%	Gvožđe sulfat 12%	IBC 1200	45.000	937,5
Natrijum ditionit	Natrijum ditionit	kanister od 25 kg	500	10,4
Aquanol 02	Smeša: 1,2-benzisotiazol-3(2H)-om (4-5,5%), N-(3-aminopropil)-N-dodecilpropan-1,3-diamid (2-3,5%), kalijum hidroksid (0,5-1,5%), natrijumova so 2-piridinetiol-1-oksida (0,5-1,5%)	kanister od 25 kg	1000	20,8
Buz defoam	Smeša: 5-hloro-2-metil-4-izotiazolin-3-on i 2-metil-2H-izotiazol-3-on (3:1) (< 0,0015 %); 2-metilizotiazol-3(2H)-on (< 0,0005 %)	kanister od 10 kg	150	3,2
KCLProwaclean 6XL	Kalijum hidroksid (25-50%), natrijum hidroksid (3-5%), poliglikosid (1-2,5%), nejonski surfaktanti (<5%)	IBC 1200	4.000	83,3
KCLProwaclean 8XL	Limunska kiselina (10-20%), sulfamidna kiselina (10-25%)	IBC 1100	2.000	41,7
KCLExfoam 7	Vodena disperzija: 2-metil-3-izotiazolon (<0,15%)	Kanister od 25 kg	200	4,2
KCL Additive AS 30 I	Vodeni rastvor soli fosforne kiseline: 1-hidroksietildien bisfosfonat (29-30%)	IBC 1200	4.000	83,3

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	29 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

Keaser omega	Homopolimer butena (25 – 50 %), 4-4 – dibutilditiokarbmat (<10%)	Kanister 30 kg	100	2,1
			521.680,00	10.868,3

NAPOMENA: U tabeli iznad, boldiran tekst je ono što je promenjeno u odnosu na IDP.

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	30 od 43

BILANS OTPADNIH VODA

NAPOMENA: BILANS OTPADNIH VODA SE NIJE MENJAO U ODNOSU NA IDP

Tabela 9 Bilans otpadnih voda

POZICIJA NA PID-U	PPROCESNA LINIJA	Sub-proces	Hemikalije koje se dodaju pri procesu:	Zapremina [L]	Tip otpadne vode	Interval održavanja	Kontinualan otpadna voda [L/h]
						diskontinualna otpadna voda	
203	Mesing	ultrazvučno odmašćivanje 1	SurfaCLEAN 688+ Surfaclean 958	3465	Otpadni elektrolit sa pastom za polirenje	1 x nedeljno	
204	Mesing	kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja kisela	1 x nedeljno	60
205	Mesing	kaskada ispiranja 2	-	1857	otpadna voda sa ispiranja kisela	1 x nedeljno	
206	Mesing	ultrazvučno odmašćivanje 2	Ekasit KA 800/G	3165	alkalan otpadni elektrolit	svake dve nedelje	
207	Mesing	ultrazvučno odmašćivanje 2	Ekasit KA 800/G	3165	alkalan otpadni elektrolit	svake dve nedelje	
208	Mesing	kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	60
209	Mesing	kaskada ispiranja 2 + SR	-	1857	otpadna voda sa ispiranja, alkalna.	1 x nedeljno	
210	Mesing	ultrazvučno odmašćivanje 3	Ekasit KA 800/G	3165	alkalan otpadni elektrolit	svake dve nedelje	
211	Mesing	ultrazvučno odmašćivanje 3	Ekasit KA 800/G	3165	alkalan otpadni elektrolit	svake dve nedelje	
212	Mesing	kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja, alkalna.	1 x nedeljno	120
213	Mesing	kaskada ispiranja 2 + SR	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
214	Mesing	hidrosonično čišćenje	Surfaclean 995	3679	blago alkalna	svake dve nedelje	
215	Mesing	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja, alkalna	1 x nedeljno	40



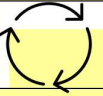
SEPARAT
- TRETMAN OTPADNIH VODA -



216	Mesing		kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
217	Mesing		kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
218	Mesing		Katodno odmašćivanje	SURFACLEAN V 149+ EKASIT F 15	3721	alkalan otpadni elektrolit	nedeljno	
219	Mesing		Anodno odmašćivanje	SURFACLEAN V 149+ EKASIT F 15	3721	alkalan otpadni elektrolit	svake dve nedelje	
220	Mesing		kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja, alkalna	1 x nedeljno	67
221	Mesing		kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
222	Mesing		kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
223	Mesing		Dekap.	Activator 5	2139	kisela otpadni elektrolit	nedeljno	
224	Mesing		kaskada ispiranja 1	-	2159	otpadna voda sa ispiranja- kisela	1 x nedeljno	49
225	Mesing		kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja- kisela	1 x nedeljno	
226	Mesing		kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja- kisela	1 x nedeljno	
228	Mesing		Sjajne prevlake nikla	ORION 3000+	4568	kiseo otpadni elektrolit- sadrži Ni	x	
229	Mesing		Sjajne prevlake nikla		4568	kiseo otpadni elektrolit- sadrži Ni	x	
230	Mesing		Sjajne prevlake nikla		4568	kiseo otpadni elektrolit- sadrži Ni	x	
231	Mesing		Sjajne prevlake nikla		4568	kiseo otpadni elektrolit- sadrži Ni	x	
232	Mesing		kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja acid nickel	1 x nedeljno	98
233	Mesing		kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja acid nickel	1 x nedeljno	
234	Mesing		kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja acid nickel	1 x nedeljno	
235	Mesing		kaskada ispiranja 4	-	1882	otpadna voda sa ispiranja acid nickel	1 x nedeljno	
236	Mesing		Aktivacija hroma (III)	NaOH	3636	alkalan otpadni elektrolit	monthly	
237	Mesing		Flow sink		1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	73

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	32 od 43


SEPARAT
- TRETMAN OTPADNIH VODA -


238	Mesing		Hrom (III)	Trimac Blue / Sapphire 2000	4705	sadrži kompleksne soli Cr-III otpadni elektrolit	x	
239	Mesing		Hrom (III) ZnDG	Trimac Blue / Sapphire 2000	4705	sadrži kompleksne soli Cr-III otpadni elektrolit	x	
240	Mesing		kaskada ispiranja 1	-	1850	otpadna voda sa ispiranja sadrži kompleksne soli Cr-III	1 x nedeljno	167
241	Mesing		kaskada ispiranja 2	-	1870	otpadna voda sa ispiranja sadrži kompleksne soli Cr-III	1 x nedeljno	
242	Mesing		kaskada ispiranja 3	-	1890	otpadna voda sa ispiranja sadrži kompleksne soli Cr-III	1 x nedeljno	
243	Mesing		Pasivizacija hroma (III)	Tristar shield	4064	blago kisela	svake dve nedelje	
244	Mesing		kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja- kisela	1 x nedeljno	64
245	Mesing		kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja- kisela	1 x nedeljno	
246	Mesing		kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja- kisela	1 x nedeljno	
247	Mesing		Toplo ispiranje 1	-	2239			
248	Mesing		Toplo ispiranje 2	-	2270			
249	Mesing		Toplo ispiranje 3	-	2541			
250	Mesing		Sušnica	-				
251	Mesing		Sušnica	-				
302	Cink / srednje poliran		ultrazvučno odmaščivanje 1	Ekasit BF	3465	blagol alkalan otpadni elektrolit	nedeljno	
303	Cink / srednje poliran		kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	45
304	Cink / srednje poliran		kaskada ispiranja 2	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	



SEPARAT
- TRETMAN OTPADNIH VODA -



305	Cink / srednje poliran	ultrazvučno odmašćivanje 2	Ekasit BF	3165	alkalan otpadni elektrolit	2 x nedeljno	
306	Cink / srednje poliran	ultrazvučno odmašćivanje 2	Ekasit BF	3165	alkalan otpadni elektrolit	2 x nedeljno	
307	Cink / srednje poliran	kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	90
308	Cink / srednje poliran	kaskada ispiranja 2	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
309	Cink / srednje poliran	hidrosonično čišćenje	Ekasit X565	3679	blago alkalan otpadni elektrolit	nedeljno	
310	Cink / srednje poliran	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja, alkalna	1 x nedeljno	30
311	Cink / srednje poliran	kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
312	Cink / srednje poliran	kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
313	Cink	Katodno odmašćivanje	EKASIT LX	3721	alkalan otpadni elektrolit	nedeljno	
314	Cink / srednje poliran	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja, alkalna	1 x nedeljno	50
315	Cink / srednje poliran	kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
316	Cink / srednje poliran	kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
317	Cink	Dekap.	Activator 5 (Additive LX)	2139	kiselo otpadni elektrolit	nedeljno	
318	Cink	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja- kisela	1 x nedeljno	25
319	Cink	kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja- kisela	1 x nedeljno	
320	Cink	kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja- kisela	1 x nedeljno	
321	Cink	Cljand..	CHELUX	5024	alkalan-CN-Cu-otpadni elektrolit		
		(Predtretman) bakar	less bakar				
322	Cink	Cljand..	CHELUX	5024	alkalan-CN-Cu-otpadni elektrolit		
		(Predtretman) bakar					
323	Cink	Cljand.. bakar	CHELUX	5024	alkalan-CN-Cu-otpadni elektrolit		



SEPARAT
- TRETMAN OTPADNIH VODA -



324	Cink	Cljand.. bakar		5024	alkalan-CN-Cu- otpadni elektrolit		
325	Cink	Cljand.. bakar		5024	alkalan-CN-Cu- otpadni elektrolit		
326	Cink	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja, alkalna CN-Cu	1 x nedeljno	85
327	Cink	kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja, alkalna CN-Cu	1 x nedeljno	
328	Cink	kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja, alkalna CN-Cu	1 x nedeljno	
330	Cink	Katodno odmašćivanje	Surfaclean v 149 + Ekasit F15	3721	Containing alkalan CN-Cu	svake dve nedelje	
331	Cink	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja, alkalna CN-Cu	1 x nedeljno	50
332	Cink	kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja, alkalna CN-Cu	1 x nedeljno	
333	Cink	kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja, alkalna CN-Cu	1 x nedeljno	
334	Cink	Aktivacija Cu	Activator 5	2139	kiselo otpadni elektrolit	nedeljno	
335	Cink / srednje poliran	kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja- kisela	1 x nedeljno	25
336	Cink / srednje poliran	kaskada ispiranja 2	-	1857	otpadna voda sa ispiranja- kisela	1 x nedeljno	
337	Cink / srednje poliran	Bakar- kiseli elektrolit	RUBIN F 2000	4705	- kisela, sadrži Cu- otpadni elektrolit		
338	Cink / srednje poliran	Bakar- kiseli elektrolit	RUBIN F 2000	4705	- kisela, sadrži Cu- otpadni elektrolit		
339	Cink / srednje poliran	Bakar- kiseli elektrolit	RUBIN F 2000	4705	- kisela, sadrži Cu- otpadni elektrolit		
340	Cink / srednje poliran	Bakar- kiseli elektrolit	RUBIN F 2000	4705	- kisela, sadrži Cu- otpadni elektrolit		
341	Cink / srednje poliran	Bakar- kiseli elektrolit	RUBIN F 2000	4705	- kisela, sadrži Cu- otpadni elektrolit		
342	Cink / srednje poliran	kaskada ispiranja 1	-	1809	otpadna voda sa ispiranja - kisela, sadrži Cu.	1 x nedeljno	38
343		kaskada ispiranja 2	-	1833	otpadna voda sa ispiranja	1 x nedeljno	

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	35 od 43



SEPARAT
- TRETMAN OTPADNIH VODA -



	Cink / srednje poliran				- kisela, sadrži Cu.		
344	Cink / srednje poliran	kaskada ispiranja 3	-	1857	otpadna voda sa ispiranja - kisela, sadrži Cu - kisela, sadrži Cu	1 x nedeljno	
267	nosači	Demetalizacija -hrom	KOH	3000	alkalna	svake dve nedelje	
266	nosači	kaskada ispiranja 1	-	1833	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
265	nosači	kaskada ispiranja 2	-	1857	otpadna voda sa ispiranja, alkalna	1 x nedeljno	
264	nosači	Cu/Ni Strip	RTP STRIPPER E	5989	kiselo otpadni elektrolit	X	
263	nosači	Cu/Ni Strip			kiselo otpadni elektrolit	X	
262	nosači	Cu/Ni Strip		5989	kiselo otpadni elektrolit	X	
261	nosači	Cu/Ni Strip			kiselo otpadni elektrolit	X	
260	nosači	Cu/Ni Strip		5989	kiselo otpadni elektrolit	X	
259	nosači	Cu/Ni Strip			kiselo otpadni elektrolit	X	
258	nosači	kaskada ispiranja 1	-	1857	otpadna voda sa ispiranja- kisela	1 x nedeljno	23
257	nosači	kaskada ispiranja 2	-	2000	otpadna voda sa ispiranja- kisela	1 x nedeljno	
256	nosači	Ispiranje	-	1833		two times a year	
255	nosači	Sušnica	-				

BILANS OTPADNIH VODA

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	36 od 43



SEPARAT
- TRETMAN OTPADNIH VODA -



Ukupno otpadne vode	Ukupno otpadne vode + 20% stepen sigurnosti
[L/dan]	[L/dan]
71.847,00	86.216,00
[m3 /dan]	[m3 /dan]
72,00	87,00
[L/nedelja]	[L/nedelja]
431.080,00	517.297,00
[m3 /nedelja]	[m3 /nedelja]
431,00	520,00

Investitor:**SEPARAT**
- TRETMAN OTPADNIH VODA -**Projektant:****2. KARAKTERISTIKE NOVE OPREME**

Unapređenje procesa se ogleda u dodavanju dva komada opreme: vakuum uparivača i kristalizatora. U sledećoj tabeli izlistane su njihove karakteristike.

Oprema	Tip	Kapacitet, l/h	Temp. , °C	Materijal	El. priključak	Mrežni priključak	Gradska voda	Komprimovani vazduh	Lokalni odis
Vakuum uparivač	ML 1800 FC	1980	85 - 90	Nerđajući čelik	400 V, 156 kW, 229 A	da	da, d 32	da, d 12	da (kiselo - bazno), d 75
Kristalizator sa uređajem za generisanje vruće vode (60 l)	ECO 3000 DRY- WWC; BW 100- 3/36	125	50 - 70	Nerđajući čelik	400 V, (108+4,5) kW, 170 A	da	da, d 20 (za vruću vodu d25)	da, d 10	da (kiselo - bazno), d 75

Sveska	Projekat:	Revizija	Datum
7	IDP – IDEJNI PROJEKAT	1	Mart 2024.

Investitor:



SEPARAT
- TRETMAN OTPADNIH VODA -

Projektant:



3. KLASIFIKACIJA OTPADNIH MATERIJA

Opis	Stanje	Klasifikaciona oznaka	Očekivanja količina u 2024	Očekivana količina 2028	Jeidnica	Način držanja	Količina otpada, kg/dan (6 dana u nedelji – 300 radnih dana)
Galvanizacijski mulj	čvrsto	11 01 09	80.000	240.000	kg/year	Kontejner ili <i>big bag</i>	800
Aktivni ugalj - filter	čvrsto	15 02 02	2.800	8.400	kg/year	ASP 1 m ³	28
Papirni filteri	čvrsto	15 02 02	3.800	11.400	kg/year	ASP 1 m ³	38
Jonoizmenjivačka smola	čvrsto	11 01 16	300	900	kg/year	ASP 1 m ³	3
Koncentrat sa kristalizatora	veoma viskozno	11 01 98	24.000	72.000	kg/year	ASP 1 m ³	240
Amonijum sulfat	Fluid	11 01 98	8.500	25.500	kg/year	ASP 1 m ³	85

Sveska	Projekat:	Revizija	Datum
7	IDP – IDEJNI PROJEKAT	1	Mart 2024.

Investitor:



SEPARAT
- TRETMAN OTPADNIH VODA -

Projektant:





4. KARAKTERISTIKE OTPADNIH VODA – OČEKIVANE VREDNOSTI ZAGAĐUJUĆIH MATERIJA

Tabela 10 Sastav otpadnih voda nakon tretmana



	Parametar	Jedinica	Vrednost
1	Aluminijum	mg/l	3
2	Hemijska potrošnja kiseonika (CSB)	mg/l	1000
3	Gvožđe	mg/l	3
4	Flourid	mg/l	50
5	Ugljeni hidrati	mg/l	10
6	Fosfor	mg/l	2
7	Organski halogenidi koji se mogu apsorbovati (AOX)	mg/l	1
8	Olovo	mg/l	0,5
9	Ukupni hrom	mg/l	0,5
10	Hrom VI	mg/l	0,1
11	Cijanid	mg/l	0,2
12	Bakar	mg/l	0,5
13	Nikl	mg/l	0,5
14	Sulfidi	mg/l	1
15	Cink	mg/l	2
16	Sedimentacija nakon 10 min	mg/l	150
17	Sulfati sulphate	mg/l	400
18	Ukupne soli SALTS	mg/l	5000
19	pH	-	6,5-9,5

Sveska	Projekat:	Revizija	Datum
7	IDP – IDEJNI PROJEKAT	1	Mart 2024.

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	



5. MSDS

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	41 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

GRAFIČKA DOKUMENTACIJA
- TRETMAN OTPADNIH VODA -

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	42 od 43

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

GRAFIČKA DOKUMENTACIJA

PRILOG	D O K U M E N T
001	Osnova pogona za tretman otpadnih voda
002	Procesna šema – Tretman otpadnih voda
003	Procesna šema – Tretman otpadnih voda – Unapređenje

Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	43 od 43

SICHERHEITSDATENBLATT gemäß Verordnung (EG) Nr. 1907/2006

Natronlauge 50 %

Version 7.0

Druckdatum 19.06.2020

Überarbeitet am / gültig ab 11.04.2019

ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens**1.1. Produktidentifikator**

Handelsname : Natronlauge 50 %

1.2. Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird

Verwendung des Stoffs/des Gemisches : Identifizierte Verwendungen: Siehe Tabelle im Anhang mit einer kompletten Übersicht der identifizierten Verwendungen.

Verwendungen, von denen abgeraten wird : Derzeit wurden noch keine Verwendungen identifiziert, von denen abgeraten wird.

Bemerkung : Bevor Sie sich auf ein Expositionsszenario dieses Sicherheitsdatenblattes berufen, prüfen Sie bitte die Qualität des Produktes: die angegebenen Expositionsszenarien beziehen sich nicht auf alle Produktqualitäten

1.3. Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt

Firma : Brenntag GmbH
Messeallee 11
DE 45131 Essen

Telefon : +49 (0)201 6496-0
Telefax : +49 (0)201 6496-2039
Email-Adresse : InfoSDB@brenntag.de
Verantwortliche/ausstellen : Umwelt / Sicherheit
de Person

1.4. Notrufnummer

Notrufnummer : +49 (0)201-6496-0 (Verfügbar: 24 Stunden / 7 Tage)

ABSCHNITT 2: Mögliche Gefahren**2.1. Einstufung des Stoffs oder Gemischs**

Einstufung gemäß Verordnung (EG) 1272/2008

VERORDNUNG (EG) Nr. 1272/2008			
Gefahrenklasse	Gefahrenkategorie	Zielorgane	Gefahrenhinweise

Natronlauge 50 %

Korrosiv gegenüber Metallen	Kategorie 1	---	H290
Ätzwirkung auf die Haut	Kategorie 1A	---	H314
Schwere Augenschädigung	Kategorie 1	---	H318

Den Volltext der in diesem Abschnitt aufgeführten Gefahrenhinweise finden Sie unter Abschnitt 16.

Wichtige schädliche Wirkungen

Menschliche Gesundheit : Siehe Abschnitt 11 für toxikologische Informationen.

Physikalische und chemische Gefahren : Siehe Abschnitt 9/10 für physikalisch-chemische Informationen.

Mögliche Wirkungen auf die Umwelt : Siehe Abschnitt 12 für Angaben zur Ökologie.

2.2. Kennzeichnungselemente**Kennzeichnung gemäß Verordnung (EG) 1272/2008**

Gefahrensymbole :



Signalwort : Gefahr

Gefahrenhinweise : H290 Kann gegenüber Metallen korrosiv sein.
H314 Verursacht schwere Verätzungen der Haut und schwere Augenschäden.

Sicherheitshinweise

Prävention : P280 Schutzhandschuhe/ Schutzkleidung/ Augenschutz/ Gesichtsschutz tragen.

Reaktion : P301 + P330 + P331 BEI VERSCHLUCKEN: Mund ausspülen. KEIN Erbrechen herbeiführen.
P303 + P361 + P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen oder duschen.
P304 + P340 + P310 BEI EINATMEN: Die Person an die frische Luft bringen und für ungehinderte Atmung sorgen. Sofort GIFTINFORMATIONSZENTRUM/Arzt anrufen.
P305 + P351 + P338 BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.
P390 Verschüttete Mengen aufnehmen, um Materialschäden zu vermeiden.

Natronlauge 50 %**Gefahrenbestimmende Komponente(n) zur Etikettierung:**

- Natriumhydroxid

2.3. Sonstige Gefahren

Die Ergebnisse zur PBT und vPvB Bewertung finden Sie im Unterabschnitt 12.5.

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen**3.2. Gemische**

Chemische : Wässrige Lösung
Charakterisierung

		Einstufung (VERORDNUNG (EG) Nr. 1272/2008)	
Gefährliche Inhaltsstoffe	Menge [%]	Gefahrenklasse / Gefahrenkategorie	Gefahrenhinweise
Natriumhydroxid			
INDEX-Nr. : 011-002-00-6	>= 5 - <= 50	Met. Corr.1	H290
CAS-Nr. : 1310-73-2		Skin Corr.1A	H314
EG-Nr. : 215-185-5		Eye Dam.1	H318
EU REACH-Reg. Nr. : 01-2119457892-27-xxxx			

Den Volltext der in diesem Abschnitt aufgeführten Gefahrenhinweise finden Sie unter Abschnitt 16.

ABSCHNITT 4: Erste-Hilfe-Maßnahmen**4.1. Beschreibung der Erste-Hilfe-Maßnahmen**

- Allgemeine Hinweise : Kontaminierte Kleidung sofort ausziehen.
- Nach Einatmen : Bei Unfall durch Einatmen: Verunfallten an die frische Luft bringen und ruhigstellen. Bei unregelmäßiger Atmung oder Atemstillstand künstliche Beatmung einleiten. Sofort Arzt hinzuziehen.
- Nach Hautkontakt : Sofort Arzt hinzuziehen. Sofort mit Seife und viel Wasser abwaschen.
- Nach Augenkontakt : Sofort mit viel Wasser mindestens 15 Minuten lang ausspülen, auch unter den Augenlidern. Sofort einen Augenarzt aufsuchen. Wenn möglich eine Augenklinik aufsuchen.
- Nach Verschlucken : Mund mit Wasser ausspülen und reichlich Wasser nachtrinken. Nie einer ohnmächtigen Person etwas durch den Mund

Natronlauge 50 %

einflößen. KEIN Erbrechen herbeiführen. Sofort Arzt hinzuziehen.

4.2. Wichtigste akute und verzögert auftretende Symptome und Wirkungen

Symptome	: Für weitere Informationen über Symptome und Gesundheitsgefahren siehe Punkt 11.
Effekte	: Stark ätzend und gewebezerstörend. Bei Verschlucken starke Ätzwirkung des Mundraumes und Rachens sowie Gefahr der Perforation der Speiseröhre und des Magens. Für weitere Informationen über Symptome und Gesundheitsgefahren siehe Punkt 11.

4.3. Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung

Behandlung	: Symptomatische Behandlung.
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ABSCHNITT 5: Maßnahmen zur Brandbekämpfung**5.1. Löschmittel**

Geeignete Löschmittel	: Löschmaßnahmen auf die Umgebung abstimmen.
Ungeeignete Löschmittel	: Wasservollstrahl

5.2. Besondere vom Stoff oder Gemisch ausgehende Gefahren

Besondere Gefahren bei der Brandbekämpfung	: Unvollständige Verbrennung kann zur Bildung giftiger Pyrolyseprodukte führen.
Gefährliche Verbrennungsprodukte	: Entstehung ätzender Dämpfe ist möglich.

5.3. Hinweise für die Brandbekämpfung

Besondere Schutzausrüstung für die Brandbekämpfung	: Im Brandfall umgebungsluftunabhängiges Atemschutzgerät tragen. Geeignete Schutzkleidung tragen (Vollschutzanzug).
Spezifische Löschmethoden	: Rauch mit Sprühwasser niederschlagen.
Weitere Hinweise	: Kontaminiertes Löschwasser getrennt sammeln, darf nicht in die Kanalisation gelangen.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung**6.1. Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**

Personenbezogene Vorsichtsmaßnahmen	: Ungeschützte Personen fernhalten. Persönliche Schutzausrüstung verwenden. Für angemessene Lüftung sorgen. Berührung mit der Haut und den Augen vermeiden. Dämpfe und Sprühnebel nicht einatmen.
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Natronlauge 50 %**6.2. Umweltschutzmaßnahmen**

Umweltschutzmaßnahmen : Nicht in Oberflächengewässer oder Kanalisation gelangen lassen. Eindringen in den Untergrund vermeiden. Bei der Verunreinigung von Gewässern oder der Kanalisation die zuständigen Behörden in Kenntnis setzen. Bei Eindringen in den Boden zuständige Behörden benachrichtigen.

6.3. Methoden und Material für Rückhaltung und Reinigung

Methoden und Material für Rückhaltung und Reinigung : Mit flüssigkeitsbindendem Material (Sand, Kieselgur, Säurebinder, Universalbinder) aufnehmen. Zur Entsorgung in geeignete und verschlossene Behälter geben.
: Mechanisch aufnehmen. Zur Entsorgung in geeignete und verschlossene Behälter geben.

Weitere Information : Das aufgenommene Material gemäß Abschnitt Entsorgung behandeln.

6.4. Verweis auf andere Abschnitte

Siehe Abschnitt 1 zur Notfallauskunft.
Siehe Abschnitt 8 für Informationen zur Schutzausrüstung.
Siehe Abschnitt 13 für Informationen zur Abfallentsorgung.

ABSCHNITT 7: Handhabung und Lagerung**7.1. Schutzmaßnahmen zur sicheren Handhabung**

Hinweise zum sicheren Umgang : Behälter dicht geschlossen halten. Für angemessene Lüftung sorgen. Persönliche Schutzausrüstung verwenden. Kontakt mit Haut, Augen und Kleidung vermeiden. Dämpfe und Sprühnebel nicht einatmen. Bei Auftreten von Dämpfen und Aerosolen Atemschutzgerät mit geeignetem Filter benutzen. Notfallaugenduschen sollten in unmittelbarer Nähe verfügbar sein.

Hygienemaßnahmen : Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten. Im Anwendungsbereich nicht essen, trinken oder rauchen. Vor den Pausen und bei Arbeitsende Hände waschen. Beschmutzte Kleidung sofort ausziehen.

7.2. Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten

Anforderungen an Lagerräume und Behälter : Im Originalbehälter lagern. Geeignete Behältermaterialien: Rostfreier Stahl; Polyethylen; Polypropylen; Polyvinylchlorid; Ungeeignete Behältermaterialien: Aluminium; Zink; Kupfer

Hinweise zum Brand- und Explosionsschutz : Übliche Maßnahmen des vorbeugenden Brandschutzes.

Weitere Angaben zu Lagerbedingungen : Dicht verschlossen, kühl und trocken aufbewahren. An einem gut belüfteten Ort aufbewahren.

Natronlauge 50 %

Zusammenlagerungshinweise : Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.

Lagerklasse (LGK) : 8B Nicht brennbare ätzende Gefahrstoffe

7.3. Spezifische Endanwendungen

Bestimmte Verwendung(en) : Identifizierte Verwendungen: Siehe Tabelle im Anhang mit einer kompletten Übersicht der identifizierten Verwendungen.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen**8.1. Zu überwachende Parameter****Andere Arbeitsplatzgrenzwerte**

(Zusätzliche) Informationen : Enthält keine Stoffe mit Arbeitsplatzgrenzwerten.

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		

DNEL

Arbeitnehmer, Langfristig - lokale Wirkungen, Einatmung : 1,0 mg/m³

DNEL

Verbraucher, Langfristig - lokale Wirkungen, Einatmung : 1,0 mg/m³

Abgeschätzte Nicht-Effekt-Konzentration (PNEC)

Es wurde kein PNEC-Wert abgeleitet. :

8.2. Begrenzung und Überwachung der Exposition**Geeignete technische Steuerungseinrichtungen**

Siehe Schutzmaßnahmen unter Punkt 7 und 8.

Persönliche Schutzausrüstung*Atemschutz*

Hinweis : Bei kurzzeitiger oder geringer Belastung Atemfiltergerät verwenden.
Atemschutz gemäß EN141.
Bei intensiver bzw. längerer Exposition umluftunabhängiges Atemschutzgerät verwenden.

Natronlauge 50 %*Handschutz*

Hinweis : Geeignete Schutzhandschuhe tragen.
Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein.
Beachten Sie die Angaben des Herstellers in Bezug auf Durchlässigkeit und Durchbruchzeit sowie die besonderen Bedingungen am Arbeitsplatz (mechanische Belastung, Kontaktdauer).
Schutzhandschuhe sollten bei ersten Abnutzungserscheinungen ersetzt werden.

Material : Naturkautschuk
Durchbruchzeit : ≥ 8 h
Handschuhdicke : 0,5 mm

Material : Polychloropren
Durchbruchzeit : ≥ 8 h
Handschuhdicke : 0,5 mm

Material : Nitrilkautschuk
Durchbruchzeit : ≥ 8 h
Handschuhdicke : 0,35 mm

Material : Butylkautschuk
Durchbruchzeit : ≥ 8 h
Handschuhdicke : 0,5 mm

Material : Fluorkautschuk
Durchbruchzeit : ≥ 8 h
Handschuhdicke : 0,4 mm

Material : Polyvinylchlorid
Durchbruchzeit : ≥ 8 h
Handschuhdicke : 0,5 mm

Augenschutz

Hinweis : Schutzbrillen
Gesichtsschutzschild

Haut- und Körperschutz

Hinweis : Undurchlässige Schutzkleidung
Chemikalienbeständige Schürze

Begrenzung und Überwachung der Umweltexposition

Allgemeine Hinweise : Nicht in Oberflächengewässer oder Kanalisation gelangen lassen.
Eindringen in den Untergrund vermeiden.

Natronlauge 50 %

Bei der Verunreinigung von Gewässern oder der Kanalisation die zuständigen Behörden in Kenntnis setzen.
Bei Eindringen in den Boden zuständige Behörden benachrichtigen.

ABSCHNITT 9: Physikalische und chemische Eigenschaften**9.1. Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften**

Form	: flüssig
Farbe	: farblos
Geruch	: geruchlos
Geruchsschwelle	: Nicht anwendbar
pH-Wert	: ca. 14 (20 °C)
Schmelzpunkt/Schmelzbereich	: -17 °C 10% ige Lösung 12 °C 50%ige Lösung
Siedepunkt/Siedebereich	: 105 °C 10% ige Lösung 145 °C 50%ige Lösung
Flammpunkt	: Nicht anwendbar
Verdampfungsgeschwindigkeit	: Nicht anwendbar
Entzündbarkeit (fest, gasförmig)	: Nicht anwendbar
Obere Explosionsgrenze	: Nicht anwendbar
Untere Explosionsgrenze	: Nicht anwendbar
Dampfdruck	: 21 hPa (20 °C) 12%ige Lösung
Relative Dampfdichte	: Keine Daten verfügbar
Dichte	: ca. 1,0538 g/cm ³ (20 °C) 5% ige Lösung ca. 1,175 g/cm ³ (20 °C) 15%ige Lösung ca. 1,274 g/cm ³ (20 °C) 25%ige Lösung ca. 1,34 g/cm ³ (20 °C) 30%ige Lösung ca. 1,38 g/cm ³ (20 °C) 35%ige Lösung ca. 1,48 g/cm ³ (20 °C) 45%ige Lösung ca. 1,525 g/cm ³ (20 °C) 50%ige Lösung ca. 1,2191 g/cm ³ (20 °C) 20%ige Lösung
Wasserlöslichkeit	: vollkommen löslich
Verteilungskoeffizient: n-Octanol/Wasser	: Keine Daten verfügbar
Selbstentzündungstemperatur	: Keine Daten verfügbar

Natronlauge 50 %

Thermische Zersetzung	: Keine Daten verfügbar
Viskosität, dynamisch	: 79 mPa.s (20 °C) 50%ige Lösung
Explosionsgefährlichkeit	: Das Produkt ist nicht explosionsgefährlich.
Oxidierende Eigenschaften	: Keine Daten verfügbar

9.2. Sonstige Angaben

Metallkorrosion	: Korrosiv auf Metalle
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ABSCHNITT 10: Stabilität und Reaktivität**10.1. Reaktivität**

Hinweis	: Keine Zersetzung bei bestimmungsgemäßer Lagerung und Anwendung.
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10.2. Chemische Stabilität

Hinweis	: Stabil unter angegebenen Lagerungsbedingungen.
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10.3. Möglichkeit gefährlicher Reaktionen

Gefährliche Reaktionen	: Korrosiv gegenüber Metallen Durch Reaktion mit unedlen Metallen (Aluminium, Zink) wird Wasserstoff abgegeben. Reagiert exotherm mit Wasser. Reagiert exotherm mit Säuren.
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10.4. Zu vermeidende Bedingungen

Zu vermeidende Bedingungen	: Hitze, Flammen und Funken.
Thermische Zersetzung	: Keine Daten verfügbar

10.5. Unverträgliche Materialien

Zu vermeidende Stoffe	: Zu vermeidende Stoffe: Säuren, Leichtmetalle, Alkohole, Halogenkohlenwasserstoff
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10.6. Gefährliche Zersetzungsprodukte

Gefährliche Zersetzungsprodukte	: Wasserstoff
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ABSCHNITT 11: Toxikologische Angaben**11.1. Angaben zu toxikologischen Wirkungen****Daten für das Produkt****Akute Toxizität****Oral**

Natronlauge 50 %

Für das Gemisch selbst sind keine Daten verfügbar., Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Einatmen

Für das Gemisch selbst sind keine Daten verfügbar.
Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Haut

Für das Gemisch selbst sind keine Daten verfügbar.
Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Reizung**Haut**

Ergebnis : Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Augen

Ergebnis : Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Sensibilisierung

Ergebnis : Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

CMR-Wirkungen**CMR Eigenschaften**

Kanzerogenität : Keine Daten verfügbar

Mutagenität : Keine Daten verfügbar

Reproduktionstoxizität : Keine Daten verfügbar

Bemerkung : Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Spezifische Zielorgantoxizität

Natronlauge 50 %**Einmalige Exposition**

Bemerkung : Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Wiederholte Einwirkung

Bemerkung : Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.

Andere toxikologische Eigenschaften**Toxizität bei wiederholter Verabreichung**

Keine Daten verfügbar

Aspirationsgefahr

Diese Angabe ist bei der Auflistung der enthaltenen Komponente/Komponenten weiter unten in diesem Abschnitt zu finden.,

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
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Akute Toxizität**Oral**

Keine gültigen Daten verfügbar.

Einatmen

Keine gültigen Daten verfügbar.

Haut

Keine gültigen Daten verfügbar.

Reizung**Haut**

Ergebnis : Stark ätzend (Kaninchen) (Keine Richtlinie angewendet)

Augen

Ergebnis : Reizt die Augen. (Kaninchen) (OECD - Richtlinie 405)

Augen

Natronlauge 50 %

Ergebnis : Reizt die Augen. (Kaninchen) (OECD - Richtlinie 405)

Sensibilisierung

Ergebnis : nicht sensibilisierend (Mensch) (Keine Richtlinie angewendet) Sensibilisierungen sind bei Patch-Tests an Freiwilligen nicht aufgetreten.

CMR-Wirkungen**CMR Eigenschaften**

Kanzerogenität : Keine experimentellen Hinweise auf Kanzerogenität vorhanden.
Mutagenität : In-vitro-Tests zeigten keine erbgutverändernden Wirkungen
In-vivo-Tests zeigten keine erbgutverändernden Wirkungen
Teratogenität : Keine Daten verfügbar
Reproduktionstoxizität : Eine Beeinträchtigung der Fortpflanzungsfähigkeit ist nicht zu erwarten.

Spezifische Zielorgantoxizität**Einmalige Exposition**

Bemerkung : Der Stoff oder das Gemisch ist nicht als zielorgantoxisch, einmalige Exposition, eingestuft.

Wiederholte Einwirkung

Bemerkung : Der Stoff oder das Gemisch ist nicht als zielorgantoxisch, wiederholte Exposition, eingestuft.

Andere toxikologische Eigenschaften**Aspirationsgefahr**

Nicht anwendbar,

ABSCHNITT 12: Umweltbezogene Angaben**12.1. Toxizität**

Inhaltsstoff: Natriumhydroxid CAS-Nr. 1310-73-2

Akute Toxizität**Fisch**

Natronlauge 50 %

LC50 : 125 mg/l (Gambusia affinis; 96 h) (Keine Richtlinie angewendet)
 LC50 : 145 mg/l (Poecilia reticulata; 24 h) (Keine Richtlinie angewendet)

Toxizität gegenüber Daphnien und anderen wirbellosen Wassertieren

EC50 : 40,4 mg/l (Ceriodaphnia (Wasserfloh); 48 h) (Keine Richtlinie angewendet)

Algen

: Keine Daten verfügbar

Bakterien

EC50 : 22 mg/l (Photobacterium phosphoreum; 15 min) (EPS 1/RM/24)

12.2. Persistenz und Abbaubarkeit

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
Persistenz und Abbaubarkeit		

Persistenz

Ergebnis : Keine Daten verfügbar

Biologische Abbaubarkeit

Ergebnis : Die Methoden zur Bestimmung der biologischen Abbaubarkeit sind bei anorganischen Stoffen nicht anwendbar.

12.3. Bioakkumulationspotenzial

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
Bioakkumulation		

Ergebnis : Keine Bioakkumulation.

12.4. Mobilität im Boden

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
Mobilität		

Natronlauge 50 %

Wasser : Das Produkt ist mobil in wässriger Umgebung.

12.5. Ergebnisse der PBT- und vPvB-Beurteilung

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
Ergebnisse der PBT- und vPvB-Beurteilung		

Ergebnis : Die PBT- oder vPvB-Kriterien des Anhangs XIII der REACH-Verordnung gelten nicht für anorganische Stoffe.

12.6. Andere schädliche Wirkungen

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
Sonstige ökologische Hinweise		

Ergebnis : Schädliche Wirkungen auf Wasserorganismen durch pH-Verschiebung.
Vor Einleitung eines Abwassers in Kläranlagen ist in der Regel eine Neutralisation erforderlich.
Nicht in Oberflächengewässer oder Kanalisation gelangen lassen.

ABSCHNITT 13: Hinweise zur Entsorgung**13.1. Verfahren der Abfallbehandlung**

- Produkt : Ein Entsorgen zusammen mit normalem Abfall ist nicht erlaubt. Eine spezielle Entsorgung gemäß lokalen gesetzlichen Vorschriften ist erforderlich. Nicht in die Kanalisation gelangen lassen. Sich mit dem Entsorger in Verbindung setzen.
- Verunreinigte Verpackungen : Kontaminierte Verpackungen sind optimal zu entleeren, sie können dann nach entsprechender Reinigung einer Wiederverwertung zugeführt werden. Ist eine Wiederverwertung nicht möglich, unter Beachtung der örtlichen behördlichen Vorschriften entsorgen.
- Europäischer Abfallkatalogschlüssel : Für dieses Produkt kann keine Abfallschlüsselnummer gemäß europäischem Abfallverzeichnis festgelegt werden, da erst der Verwendungszweck durch den Verbraucher eine Zuordnung erlaubt. Die Abfallschlüsselnummer ist in Absprache mit dem regionalen Entsorger festzulegen.

ABSCHNITT 14: Angaben zum Transport**14.1. UN-Nummer**

1824

Natronlauge 50 %**14.2. Ordnungsgemäße UN-Versandbezeichnung**

ADR : Natriumhydroxidlösung
RID : Natriumhydroxidlösung
IMDG : Sodium Hydroxide Solution

14.3. Transportgefahrenklassen

ADR-Klasse : 8
(Gefahrzettel; Klassifizierungscode; Nummer zur Kennzeichnung der Gefahr; Tunnelbeschränkungscode) : 8; C5; 80; (E)
RID-Klasse : 8
(Gefahrzettel; Klassifizierungscode; Nummer zur Kennzeichnung der Gefahr) : 8; C5; 80
IMDG-Klasse : 8
(Gefahrzettel; EmS) : 8; F-A, S-B

14.4. Verpackungsgruppe

ADR : II
RID : II
IMDG : II

14.5. Umweltgefahren

Umweltgefährdend gemäß ADR : nein
Umweltgefährdend gemäß RID : nein
Meeresschadstoff gemäß IMDG-Code : nein

14.6. Besondere Vorsichtsmaßnahmen für den Verwender

entfällt

14.7. Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens 73/78 und gemäß IBC-Code

IMDG : entfällt

ABSCHNITT 15: Rechtsvorschriften**15.1. Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch****Daten für das Produkt**

EU. REACH, Anhang XVII, Beschränkungen der Herstellung, des Inverkehrbringens und der Verwendung bestimmter gefährlicher Stoffe, Zubereitungen : Nr. , 3; Eingetragen

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und Erzeugnisse

EU. Richtlinie 2012/18 / : ; Der Stoff/ die Mischung unterliegt nicht dieser
EU (Seveso III) Anhang I Gesetzgebung.

Störfallverordnung : Unterliegt nicht der StörfallV. -

Sonstige Vorschriften : Beschäftigungsbeschränkung: Die dem Schutz vor
Gefahrstoffen dienenden Beschäftigungsbeschränkungen nach
Mutterschutzrichtlinienverordnung und
Jugendarbeitsschutzgesetz sind zu beachten.

Inhaltsstoff:	Natriumhydroxid	CAS-Nr. 1310-73-2
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EU. Verordnung EU Nr : ; Der Stoff/ die Mischung unterliegt nicht dieser Gesetzgebung.
649/2012 über die Aus-
und Einfuhr gefährlicher
Chemikalien

EU. Verordnung Nr. : EG Nummer: , 215-185-5; Eingetragen
1451/2007 [Biozide],
Anhang I, OJ (L 325)

Verordnung (EG) Nr. : Maximalkonzentration in gebrauchsfertiger Mischung: 2 %;
1223/2009 über
kosmetische Mittel,
Anhang III: Liste der
Stoffe, die kosmetische
Mittel nur unter
Einhaltung der
angegebenen
Einschränkungen
enthalten dürfen

pH < 12,7.; pH-Einsteller für Enthaarungsmittel; Siehe den
Text der Verordnung für zutreffende Ausnahmen und
Bestimmungen.

Maximalkonzentration in gebrauchsfertiger Mischung: 4,5 %;
Haarglätter: Professioneller Einsatz; Siehe den Text der
Verordnung für zutreffende Ausnahmen und Bestimmungen.

pH < 11.; Verwendet als pH-Einsteller, ausgenommen für
Enthaarungsmittel; Siehe den Text der Verordnung für
zutreffende Ausnahmen und Bestimmungen.

Maximalkonzentration in gebrauchsfertiger Mischung: 5 %;
Nagelhäutchen Lösungsmittel; Siehe den Text der Verordnung
für zutreffende Ausnahmen und Bestimmungen.

WGK (DE) : WGK 1: schwach wassergefährdend: 142

Natronlauge 50 %**Registrierstatus****Natriumhydroxid:**

Gesetzliche Liste	Anmeldung	Anmeldenummer
AICS	JA	
DSL	JA	
EINECS	JA	215-185-5
ENCS (JP)	JA	(1)-410
IECSC	JA	
ISHL (JP)	JA	(1)-410
KECI (KR)	JA	97-1-136
KECI (KR)	JA	KE-31487
NZIOC	JA	HSR001547
PICCS (PH)	JA	
TSCA	JA	

15.2. Stoffsicherheitsbeurteilung

Für diesen Stoff wurde eine chemische Stoffsicherheitsbeurteilung durchgeführt.

ABSCHNITT 16: Sonstige Angaben**Volltext der Gefahrenhinweise in Abschnitt 2 und 3.**

H290	Kann gegenüber Metallen korrosiv sein.
H314	Verursacht schwere Verätzungen der Haut und schwere Augenschäden.
H318	Verursacht schwere Augenschäden.

Abkürzungen und Akronyme

BCF	Biokonzentrationsfaktor
BSB	biochemischer Sauerstoffbedarf
CAS	Chemical Abstracts Service
CLP	Einstufung, Kennzeichnung und Verpackung
CMR	krebserzeugend, erbgutverändernd oder fortpflanzungsgefährdend
CSB	chemischer Sauerstoffbedarf
DNEL	abgeleitete Expositionshöhe ohne Beeinträchtigung
EINECS	Europäisches Verzeichnis der auf dem Markt vorhandenen chemischen Stoffe
ELINCS	Europäische Liste der angemeldeten chemischen Stoffe
GHS	Global Harmonisiertes System zur Einstufung und Kennzeichnung von Chemikalien
LC50	Median-Letalkonzentration
LOAEC	niedrigste Konzentration mit beobachtbarer schädlicher Wirkung
LOAEL	niedrigste Dosis mit beobachtbarer schädlicher Wirkung
LOEL	niedrigste Dosis mit beobachtbarer Wirkung

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NLP	Nicht-länger-Polymer
NOAEC	Konzentration ohne beobachtbare schädliche Wirkung
NOAEL	Dosis ohne beobachtbare schädliche Wirkung
NOEC	höchste geprüfte Konzentration ohne beobachtete schädliche Wirkung
NOEL	Dosis ohne beobachtbare Wirkung
OECD	Organisation für wirtschaftliche Zusammenarbeit und Entwicklung
OEL	Grenzwert für die Exposition am Arbeitsplatz
PBT	persistent, bioakkumulierbar und toxisch
REACH Zulass.-Nr.	REACH Zulassungsnummer
REACH ZulassAntrK-Nr.	REACH Konsultationsnummer des Zulassungsantrages
PNEC	abgeschätzte Nicht-Effekt-Konzentration
STOT	Spezifische Zielorgan-Toxizität
SVHC	besonders besorgniserregender Stoff
UVCB-Stoffe	Stoffe mit unbekannter oder variabler Zusammensetzung, komplexe Reaktionsprodukte und biologische Materialien
vPvB	sehr persistent und sehr bioakkumulierbar
Weitere Information	

Wichtige Literaturangaben und Datenquellen	:	Für die Erstellung dieses Sicherheitsdatenblattes wurden Informationen unserer Lieferanten sowie Daten aus der "Datenbank registrierter Stoffe" der Europäischen Chemikalienagentur (ECHA) verwendet.
Methoden verwendet zur Produkteinstufung	:	Die Einstufung für die Gesundheit, physikalisch-chemischen Gefahren und Umweltgefahren wurden abgeleitet aus einer Kombination von Rechenmethoden und falls verfügbar Testdaten.
Hinweise für Schulungen	:	Die Arbeitnehmer sind regelmäßig basierend auf den Angaben im Sicherheitsdatenblatt und den örtlichen Gegebenheiten des Arbeitsplatzes über die sichere Handhabung der Produkte zu schulen. Nationale Regelungen zur Schulung von Arbeitnehmern im Umgang mit Gefahrstoffen sind zu beachten.
Sonstige Angaben	:	Die Angaben in diesem Sicherheitsdatenblatt stützen sich auf den Stand unserer Kenntnisse zum Zeitpunkt der Überarbeitung und dienen dazu, unsere Produkte im Hinblick auf zu treffende Sicherheitsvorkehrungen zu beschreiben. Sie stellen keine Zusicherung von Eigenschaften des beschriebenen Produkts und keine Produktinformation oder Produktspezifikation dar und begründen kein vertragliches Rechtsverhältnis. Die Angaben im Sicherheitsdatenblatt sind nicht übertragbar auf andere Produkte. Soweit das in diesem Sicherheitsdatenblatt genannte Produkt mit anderen Materialien vermengt, vermischt oder verarbeitet wird, oder einer Bearbeitung unterzogen wird, können die Angaben in diesem Sicherheitsdatenblatt, soweit sich hieraus nicht ausdrücklich etwas anderes ergibt, nicht auf das neue Material übertragen werden.

Natronlauge 50 %

|| Sektion wurde überarbeitet.

Natronlauge 50 %

Nr.	Kurztitel	Hauptanwendungsgruppe (SU)	Verwendungssektor (SU)	Produktkategorie (PC)	Verfahrenskategorie (PROC)	Umweltfreisetzungskategorie (ERC)	Erzeugnis-kategorie (AC)	Spezifikation
1	Herstellung der Substanz - flüssig	3	8	NA	1, 2, 3, 4, 8a, 8b, 9	1	NA	ES035
2	Herstellung der Substanz - fest	3	8	NA	1, 2, 3, 4, 8a, 8b, 9	1	NA	ES057
3	Industrielle Verwendung	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15, 19, 23, 24	2, 4, 6a, 6b, 7	NA	ES065
4	Gewerbliche Verwendung	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15, 19, 23, 24	8a, 8b, 8d, 9a	NA	ES067
5	Private Verwendung	21	NA	20, 35, 39	NA	8a, 8b, 8d, 9a	NA	ES075

Natronlauge 50 %**1. Kurzbezeichnung des Expositionsszenariums 1: Herstellung der Substanz - flüssig**

Hauptanwendergruppen	SU 3: Industrielle Verwendungen: Verwendungen von Stoffen als solche oder in Zubereitungen an Industriestandorten
Endverwendungssektoren	SU8: Herstellung von Massenchemikalien (einschließlich Mineralölprodukte)
Verfahrenskategorien	PROC1: Verwendung in geschlossenem Verfahren, keine Expositionswahrscheinlichkeit PROC2: Verwendung in geschlossenem, kontinuierlichem Verfahren mit gelegentlicher kontrollierter Exposition PROC3: Verwendung in geschlossenem Chargenverfahren (Synthese oder Formulierung) PROC4: Verwendung in Chargen- und anderen Verfahren (Synthese), bei denen die Möglichkeit einer Exposition besteht PROC8a: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in nicht speziell für nur ein Produkt vorgesehenen Anlagen PROC8b: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in speziell für nur ein Produkt vorgesehenen Anlagen PROC9: Transfer des Stoffes oder der Zubereitung in kleine Behälter (spezielle Abfüllanlage, einschließlich Wägung)
Umweltfreisetzungskategorien	ERC1: Herstellung von Stoffen

2.1 Beitragendes Szenarium zur Beherrschung der Umweltexposition für: ERC1

Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Stoffanteil im Produkt: 0% - 50%
Andere vorgegebene Betriebsbedingungen welche die Umweltexposition beeinflussen	Kontinuierliche Exposition	
Technische Auflagen und Maßnahmen auf Prozessebene, um Freisetzung zu verhüten Technische Auflagen und Maßnahmen vor Ort, um Abflüsse, Luftemissionen und Eindringen in den Erdboden zu vermindern oder einzuschränken Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzungen von der Anlage	Anwendungsgebiet	Industrielle Verwendung
	Wasser	Erfordert die regelmäßige Kontrolle des pH Wertes während der Einleitung in offene Gewässer., Allgemein soll die Abwassereinleitung so erfolgen, dass die pH Änderungen im Oberflächenwasser minimiert werden., Allgemein tolerieren die meisten aquatischen Organismen pH Werte im Bereich von 6-9. Dies spiegelt sich auch in der Beschreibung der OECD Standardtests mit aquatischen Organismen wider., Umweltbezogene Risikominimierungsmaßnahmen zielen darauf ab, die Entsorgung von Stoffen in kommunales Abwasser oder Oberflächenwasser zu vermeiden, für den Fall, dass bei dieser Entsorgung eine signifikante pH-Änderung zu erwarten ist.
Bedingungen und Maßnahmen bezüglich externe Abfallbehandlung für eine Entsorgung	Methoden zur Entsorgung	Abwasser sollte wiederverwertet oder dem industriellen Abwasser zugeführt und falls notwendig weiter neutralisiert werden.

2.2 Beitragendes Szenarium zur Beherrschung der Arbeitnehmerexposition für: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Stoffanteil im Produkt: 0% - 50%
	Physikalische Form (zum Zeitpunkt der Verwendung)	flüssig
Frequenz und Dauer der Verwendung	Einsatzhäufigkeit	200 Tage / Jahr

Natronlauge 50 %

	Einsatzhäufigkeit	8 Stunden / Tag
Technische Voraussetzungen und Maßnahmen, um eine Dispersion von der Quelle zum Arbeiter einzuschränken	Anwendungsgebiet	Industrielle Verwendung
	Verwendung von geschlossenen Systemen oder Abdeckung von offenen Gebinden. Transport über Leitungen, technische Fassbefüllung/ -entleerung mit automatisierten Systemen (Ansaugpumpen etc.) Verwendung von Zangen, Haltestangen mit langen Griffen mit manueller Nutzung, um direkten Kontakt und Exposition durch Spritzer zu vermeiden (nicht überkopf arbeiten).	
Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzung, Dispersion und Exposition	Anwendungsgebiet	Industrielle Verwendung
	Wo möglich: Manuelle Prozesse durch automatisierte oder geschlossene Prozesse ersetzen. Dies würde reizende Nebel, Zerstäubungen und später potentielle Spritzer vermeiden. Potentiell gefährdete Arbeiter werden geschult um a.) die Arbeit ohne Atemschutz zu vermeiden, b.) die ätzenden Eigenschaften (insbesondere die Risiken der Einatmung) zu verstehen und c.) den Sicherheitsvorschriften des Arbeitgebers Folge zu leisten. Der Arbeitgeber hat sich über die Verfügbarkeit der erforderlichen PSA zu vergewissern.	
Bedingungen und Maßnahmen bezüglich persönlichen Schutz, Hygiene und Gesundheitsbewertung	Anwendungsgebiet	Industrielle Verwendung
	Im Falle von Staub oder Nebelbildung: Atemschutz mit zugelassenem Filter (P2) ist zu tragen. Tragen von chemisch resistenten Handschuhen. Material: Butylkautschuk, PVC, Polychloropren mit Naturlatexauskleidung, Materialdicke: 0,5 mm, Durchdringungszeit: > 480 min Material: Nitrilkautschuk, Fluorkautschuk, Materialdicke: 0,35-0,4 mm, Durchdringungszeit: > 480 min Eng anliegende Schutzbrille oder Gesichtsschutz ist zu tragen Geeignete Schutzkleidung, Schürzen, Schilde und Mäntel tragen. Falls Spritzer wahrscheinlich auftreten werden: Gummi- oder Plastiktiefel	

3. Expositionsabschätzung und Verweis auf deren Quelle**Umwelt**

Die Wirkung sowie die dazugehörige Risikobewertung auf die aquatische Umwelt berücksichtigen nur Effekte auf Organismen/ Ökosysteme, die auf möglichen Änderungen des pH-Wertes basieren, da eine im Vergleich zur (potentiellen) pH-Änderung unbedeutende Toxizität der Metallionen zu erwarten ist. Die hohe Wasserlöslichkeit und der sehr geringe Dampfdruck deuten darauf hin, dass der Stoff vorwiegend im Wasser nachzuweisen sein wird. Wenn die umweltbezogenen Risikominimierungsmaßnahmen implementiert sind erfolgt keine Exposition des belebten Schlammes der Abwasseraufbereitungsanlage und keine Exposition des aufnehmenden Oberflächenwassers. Das Sedimentkompartiment wurde nicht berücksichtigt, da es für den Stoff nicht relevant ist. Bei Abgabe in das wässrige Kompartiment ist eine Sorption an Sedimentpartikel vernachlässigbar. Signifikante Emissionen in die Luft werden aufgrund des sehr niedrigen Dampfdrucks der Substanz nicht erwartet. Bei einer Luftemission als Aerosol auf Wasserbasis wird der Stoff durch seine Reaktion mit CO₂ (oder Säuren) rasch neutralisiert. Signifikante Emissionen in die terrestrische Umwelt sind nicht zu erwarten. Der Applikationspfad für Schlamm ist nicht relevant für die Emission in landwirtschaftliche Böden, da keine Sorption des Stoffes an Schwebstoffe in Kläranlagen/ Abwasseraufbereitungsanlagen auftreten wird. Bei einer Abgabe in den Boden ist die Sorption an Bodenpartikel vernachlässigbar. Abhängig von der Pufferkapazität des Bodens wird OH⁻ im Erdbodenporenwasser neutralisiert oder es kommt zu einem pH- Anstieg. Der Stoff ist nicht bioakkumulierend.

Arbeitnehmer

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: ECETOC TRA worker v3

Beitragendes Szenario	Spezifische Bedingungen	Expositionswege	Expositionsgrad	RCR
PROC1, PROC2, PROC3, PROC4,	Berechnete Expositionsdaten, sehr	inhalative Arbeiterexposition	0,17mg/m ³	0,17

Natronlauge 50 %

PROC8a, PROC8b, PROC9	niedriger Dampfdruck, Ohne lokale Abgasentlüftung, ohne Atemschutz			
PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9	Gemessene Expositionsdaten, worst- case	Arbeiter - inhalativ, kurzfristig - lokal	0,33mg/m ³	0,33
PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9	Gemessene Expositionsdaten, worst- case	Arbeiter - inhalativ, langfristig - lokal	0,14mg/m ³	0,14

Dieser Stoff ist korrosiv. Bei der Handhabung ätzender Stoffe und Formulierungen tritt ein direkter Kontakt nur gelegentlich auf. Es wird angenommen, dass eine wiederholte tägliche Exposition vernachlässigt werden kann. Die dermale Exposition gegenüber dem Stoff wurde nicht quantifiziert. Bei gewöhnlichen Umgangs- und Verwendungsbedingungen ist der Stoff nicht systemisch verfügbar. Das Auftreten von systemischen Effekten nach dermalen oder inhalativer Exposition ist nicht zu erwarten.

4. Leitlinien für den nachgeschalteten Anwender zur Bewertung, ob er innerhalb der im Expositionsszenarium festgelegten Grenzen arbeitet

Der nachgeschaltete Anwender arbeitet in den Grenzen des Expositionsszenarios, wenn er entweder die oben angegebenen Risikomanagementmaßnahmen anwendet oder er beweisen kann, dass seine Verwendungsbedingungen und implementierten Risikomanagementmaßnahmen gleichwertig sind. Dieser Nachweis muss erbracht werden, indem gezeigt wird, dass diese Maßnahmen die inhalative und dermale Exposition auf Werte unterhalb des zugeordneten DNEL (siehe unten) begrenzen (vorausgesetzt die fraglichen Prozesse und Aktivitäten sind durch die o.g. PROCs abgedeckt).

Falls keine Meßdaten verfügbar sind kann der nachgeschaltete Anwender Gebrauch von geeigneten Werkzeugen machen (z.B. ECETOC TRA)

Wichtiger Hinweis: Durch den Nachweis einer sicheren Verwendung bei dem Vergleich der Expositionsabschätzungen mit dem Langzeit DNEL ist der Kurzzeit DNEL ebenfalls abgedeckt (gemäß Richtlinie R.14 können akute Expositionen durch Multiplikation der Langzeitexpositionsabschätzung mit dem Faktor 2 abgeleitet werden).

Über die REACH Stoffsicherheitsbeurteilung herausgehende zusätzliche Ratschläge für eine gute Vorgangsweise

Lokale Absaugung ist nicht notwendig, ist jedoch Bestandteil der Guten Praxis.
Allgemeine Belüftung ist eine gute Praxis sofern keine lokale Absaugung ist.

Natronlauge 50 %**1. Kurzbezeichnung des Expositionsszenariums 2: Herstellung der Substanz - fest**

Hauptanwendergruppen	SU 3: Industrielle Verwendungen: Verwendungen von Stoffen als solche oder in Zubereitungen an Industriestandorten
Endverwendungssektoren	SU8: Herstellung von Massenchemikalien (einschließlich Mineralölprodukte)
Verfahrenskategorien	PROC1: Verwendung in geschlossenem Verfahren, keine Expositionswahrscheinlichkeit PROC2: Verwendung in geschlossenem, kontinuierlichem Verfahren mit gelegentlicher kontrollierter Exposition PROC3: Verwendung in geschlossenem Chargenverfahren (Synthese oder Formulierung) PROC4: Verwendung in Chargen- und anderen Verfahren (Synthese), bei denen die Möglichkeit einer Exposition besteht PROC8a: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in nicht speziell für nur ein Produkt vorgesehenen Anlagen PROC8b: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in speziell für nur ein Produkt vorgesehenen Anlagen PROC9: Transfer des Stoffes oder der Zubereitung in kleine Behälter (spezielle Abfüllanlage, einschließlich Wägung)
Umweltfreisetzungskategorien	ERC1: Herstellung von Stoffen

2.1 Beitragendes Szenarium zur Beherrschung der Umweltexposition für: ERC1

Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
Andere vorgegebene Betriebsbedingungen welche die Umweltexposition beeinflussen	Kontinuierliche Exposition	
Technische Auflagen und Maßnahmen auf Prozessebene, um Freisetzung zu verhüten Technische Auflagen und Maßnahmen vor Ort, um Abflüsse, Luftemissionen und Eindringen in den Erdboden zu vermindern oder einzuschränken Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzungen von der Anlage	Anwendungsgebiet	Industrielle Verwendung
	Wasser	Erfordert die regelmäßige Kontrolle des pH Wertes während der Einleitung in offene Gewässer., Allgemein soll die Abwassereinleitung so erfolgen, dass die pH Änderungen im Oberflächenwasser minimiert werden., Allgemein tolerieren die meisten aquatischen Organismen pH Werte im Bereich von 6-9. Dies spiegelt sich auch in der Beschreibung der OECD Standardtests mit aquatischen Organismen wider., Umweltbezogene Risikominimierungsmaßnahmen zielen darauf ab, die Entsorgung von Stoffen in kommunales Abwasser oder Oberflächenwasser zu vermeiden, für den Fall, dass bei dieser Entsorgung eine signifikante pH-Änderung zu erwarten ist.

2.2 Beitragendes Szenarium zur Beherrschung der Arbeitnehmerexposition für: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
	Physikalische Form (zum Zeitpunkt der Verwendung)	fest
Frequenz und Dauer der Verwendung	Einsatzhäufigkeit	200 Tage / Jahr
	Einsatzhäufigkeit	8 Stunden / Tag
Technische Voraussetzungen und Maßnahmen, um eine Dispersion von der Quelle zum	Anwendungsgebiet	Industrielle Verwendung
	Verwendung von geschlossenen Systemen oder Abdeckung von offenen Gebinden.	

Natronlauge 50 %

Arbeiter einzuschränken	Transport über Leitungen, technische Fassbefüllung/ -entleerung mit automatisierten Systemen (Ansaugpumpen etc.) Verwendung von Zangen, Haltestangen mit langen Griffen mit manueller Nutzung, um direkten Kontakt und Exposition durch Spritzer zu vermeiden (nicht überkopf arbeiten).	
Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzung, Dispersion und Exposition	Anwendungsgebiet	Industrielle Verwendung
	Wo möglich: Manuelle Prozesse durch automatisierte oder geschlossene Prozesse ersetzen. Dies würde reizende Nebel, Zerstäubungen und später potentielle Spritzer vermeiden. Potentiell gefährdete Arbeiter werden geschult um a.) die Arbeit ohne Atemschutz zu vermeiden, b.) die ätzenden Eigenschaften (insbesondere die Risiken der Einatmung) zu verstehen und c.) den Sicherheitsvorschriften des Arbeitgebers Folge zu leisten. Der Arbeitgeber hat sich über die Verfügbarkeit der erforderlichen PSA zu vergewissern.	
Bedingungen und Maßnahmen bezüglich persönlichen Schutz, Hygiene und Gesundheitsbewertung	Anwendungsgebiet	Industrielle Verwendung
	Im Falle von Staub oder Nebelbildung: Atemschutz mit zugelassenem Filter (P2) ist zu tragen. Tragen von chemisch resistenten Handschuhen. Material: Butylkautschuk, PVC, Polychloropren mit Naturlatexauskleidung, Materialdicke: 0,5 mm, Durchdringungszeit: > 480 min Material: Nitrilkautschuk, Fluorkautschuk, Materialdicke: 0,35-0,4 mm, Durchdringungszeit: > 480 min Eng anliegende Schutzbrille oder Gesichtsschutz ist zu tragen Geeignete Schutzkleidung, Schürzen, Schilde und Mäntel tragen. Falls Spritzer wahrscheinlich auftreten werden: Gummi- oder Plastikstiefel	

3. Expositionsabschätzung und Verweis auf deren Quelle**Umwelt**

Die Wirkung sowie die dazugehörige Risikobewertung auf die aquatische Umwelt berücksichtigen nur Effekte auf Organismen/ Ökosysteme, die auf möglichen Änderungen des pH-Wertes basieren, da eine im Vergleich zur (potentiellen) pH-Änderung unbedeutende Toxizität der Metallionen zu erwarten ist. Die hohe Wasserlöslichkeit und der sehr geringe Dampfdruck deuten darauf hin, dass der Stoff vorwiegend im Wasser nachzuweisen sein wird. Wenn die umweltbezogenen Risikominimierungsmaßnahmen implementiert sind erfolgt keine Exposition des belebten Schlammes der Abwasseraufbereitungsanlage und keine Exposition des aufnehmenden Oberflächenwassers. Das Sedimentkompartiment wurde nicht berücksichtigt, da es für den Stoff nicht relevant ist. Bei Abgabe in das wässrige Kompartiment ist eine Sorption an Sedimentpartikel vernachlässigbar. Signifikante Emissionen in die Luft werden aufgrund des sehr niedrigen Dampfdrucks der Substanz nicht erwartet. Bei einer Luftemission als Aerosol auf Wasserbasis wird der Stoff durch seine Reaktion mit CO₂ (oder Säuren) rasch neutralisiert. Signifikante Emissionen in die terrestrische Umwelt sind nicht zu erwarten. Der Applikationspfad für Schlamm ist nicht relevant für die Emission in landwirtschaftliche Böden, da keine Sorption des Stoffes an Schwebstoffe in Kläranlagen/ Abwasseraufbereitungsanlagen auftreten wird. Bei einer Abgabe in den Boden ist die Sorption an Bodenpartikel vernachlässigbar. Abhängig von der Pufferkapazität des Bodens wird OH⁻ im Erdbodenporenwasser neutralisiert oder es kommt zu einem pH- Anstieg. Der Stoff ist nicht bioakkumulierend.

Arbeitnehmer

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC9: ECETOC TRA worker v3

Beitragendes Szenario	Spezifische Bedingungen	Expositionswege	Expositionsgrad	RCR
PROC1, PROC2	Berechnete Expositionsdaten, Geringe Staubigkeit, keine lokale Absaugung, kein Atemschutz (RPE)	inhalative Arbeiterexposition	0,01mg/m ³	0,01
PROC3, PROC9	Berechnete	inhalative	0,1mg/m ³	0,1

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	Expositionsdaten, Geringe Staubigkeit, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiterexposition		
PROC4, PROC8a	Berechnete Expositionsdaten, Geringe Staubigkeit, keine lokale Absaugung, kein Atemschutz (RPE)	inhalative Arbeiterexposition	0,5mg/m ³	0,5
PROC9	Gemessene Expositionsdaten, worst- case	Arbeiter - inhalativ, kurzfristig - lokal	0,26mg/m ³	0,26

Dieser Stoff ist korrosiv. Bei der Handhabung ätzender Stoffe und Formulierungen tritt ein direkter Kontakt nur gelegentlich auf. Es wird angenommen, dass eine wiederholte tägliche Exposition vernachlässigt werden kann. Die dermale Exposition gegenüber dem Stoff wurde nicht quantifiziert. Bei gewöhnlichen Umgangs- und Verwendungsbedingungen ist der Stoff nicht systemisch verfügbar. Das Auftreten von systemischen Effekten nach dermalen oder inhalativer Exposition ist nicht zu erwarten.

4. Leitlinien für den nachgeschalteten Anwender zur Bewertung, ob er innerhalb der im Expositionsszenarium festgelegten Grenzen arbeitet

Der nachgeschaltete Anwender arbeitet in den Grenzen des Expositionsszenarios, wenn er entweder die oben angegebenen Risikomanagementmaßnahmen anwendet oder er beweisen kann, dass seine Verwendungsbedingungen und implementierten Risikomanagementmaßnahmen gleichwertig sind. Dieser Nachweis muss erbracht werden, indem gezeigt wird, dass diese Maßnahmen die inhalative und dermale Exposition auf Werte unterhalb des zugeordneten DNEL (siehe unten) begrenzen (vorausgesetzt die fraglichen Prozesse und Aktivitäten sind durch die o.g. PROCs abgedeckt).

Falls keine Meßdaten verfügbar sind kann der nachgeschaltete Anwender Gebrauch von geeigneten Werkzeugen machen (z.B. ECETOC TRA)

Wichtiger Hinweis: Durch den Nachweis einer sicheren Verwendung bei dem Vergleich der Expositionsabschätzungen mit dem Langzeit DNEL ist der Kurzzeit DNEL ebenfalls abgedeckt (gemäß Richtlinie R.14 können akute Expositionen durch Multiplikation der Langzeitexpositionsabschätzung mit dem Faktor 2 abgeleitet werden).

Über die REACH Stoffsicherheitsbeurteilung herausgehende zusätzliche Ratschläge für eine gute Vorgangsweise

Lokale Absaugung ist nicht notwendig, ist jedoch Bestandteil der Guten Praxis.
Allgemeine Belüftung ist eine gute Praxis sofern keine lokale Absaugung ist.

Natronlauge 50 %**1. Kurzbezeichnung des Expositionsszenariums 3: Industrielle Verwendung**

Hauptanwendergruppen	SU 3: Industrielle Verwendungen: Verwendungen von Stoffen als solche oder in Zubereitungen an Industriestandorten
Verfahrenskategorien	<p>PROC1: Verwendung in geschlossenem Verfahren, keine Expositionswahrscheinlichkeit</p> <p>PROC2: Verwendung in geschlossenem, kontinuierlichem Verfahren mit gelegentlicher kontrollierter Exposition</p> <p>PROC3: Verwendung in geschlossenem Chargenverfahren (Synthese oder Formulierung)</p> <p>PROC4: Verwendung in Chargen- und anderen Verfahren (Synthese), bei denen die Möglichkeit einer Exposition besteht</p> <p>PROC5: Mischen oder Vermengen in Chargenverfahren zur Formulierung von Zubereitungen und Erzeugnissen (mehrfacher und/oder erheblicher Kontakt)</p> <p>PROC7: Industrielles Sprühen</p> <p>PROC8a: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in nicht speziell für nur ein Produkt vorgesehenen Anlagen</p> <p>PROC8b: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in speziell für nur ein Produkt vorgesehenen Anlagen</p> <p>PROC9: Transfer des Stoffes oder der Zubereitung in kleine Behälter (spezielle Abfüllanlage, einschließlich Wägung)</p> <p>PROC10: Auftragen durch Rollen oder Streichen</p> <p>PROC13: Behandlung von Erzeugnissen durch Tauchen und Gießen</p> <p>PROC15: Verwendung als Laborreagenz</p> <p>PROC19: Handmischen mit engem Kontakt und nur persönlicher Schutzausrüstung</p> <p>PROC23: Offene Verarbeitung und Transfer mit Mineralien/ Metallen bei erhöhter Temperatur</p> <p>PROC24: (Mechanische) Hochleistungsbearbeitung von Stoffen, die in Materialien und/oder Erzeugnissen gebunden sind</p>
Umweltfreisetzungskategorien	<p>ERC2: Formulierung von Zubereitungen</p> <p>ERC4: Industrielle Verwendung von Verarbeitungshilfsstoffen, die nicht Bestandteil von Erzeugnissen werden, in Verfahren und Produkten</p> <p>ERC6a: Industrielle Verwendung, die zur Herstellung eines anderen Stoffes führt (Verwendung von Zwischenprodukten)</p> <p>ERC6b: Industrielle Verwendung von reaktiven Verarbeitungshilfsstoffen</p> <p>ERC7: Industrielle Verwendung von Stoffen in geschlossenen Systemen</p>
Aktivität	Da Natriumhydroxid weitverbreitet verwendet wird, kann der Stoff potentiell in allen vo, Deskriptorensystem beschriebenen Sektoren der Endnutzung (SU1-24) verwendet werden., Natronlauge wird zu unterschiedlichen Zwecken in einer Vielzahl von Industrie-sektoren verwendet.

2.1 Beitragendes Szenarium zur Beherrschung der Umweltexposition für: ERC2, ERC4, ERC6a, ERC6b, ERC7

Aktivität	Die oben genannte Umweltfreisetzungskategorie(ERC) beschreibt die wichtigste- Andere Kategorien (ERC1-12) sind jedoch ebenfalls möglich.	
Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
Andere vorgegebene Betriebsbedingungen welche die Umweltexposition beeinflussen	Kontinuierliche Exposition	
Technische Auflagen und Maßnahmen auf Prozessebene, um Freisetzung zu verhüten Technische Auflagen und Maßnahmen vor Ort, um Ablass, Luftemissionen und Eindringen in	Anwendungsgebiet	Industrielle Verwendung
	Wasser	Erfordert die regelmäßige Kontrolle des pH Wertes während der Einleitung in offene Gewässer., Allgemein soll die Abwassereinleitung so erfolgen, dass die pH Änderungen im Oberflächenwasser minimiert werden., Allgemein tolerieren die meisten

Natronlauge 50 %

den Erdboden zu vermindern oder einzuschränken Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzen von der Anlage		aquatischen Organismen pH Werte im Bereich von 6-9. Dies spiegelt sich auch in der Beschreibung der OECD Standardtests mit aquatischen Organismen wider., Umweltbezogene Risikominimierungsmaßnahmen zielen darauf ab, die Entsorgung von Stoffen in kommunales Abwasser oder Oberflächenwasser zu vermeiden, für den Fall, dass bei dieser Entsorgung eine signifikante pH-Änderung zu erwarten ist.
Bedingungen und Maßnahmen bezüglich externe Abfallbehandlung für eine Entsorgung	Methoden zur Entsorgung	Abwasser sollte wiederverwertet oder dem industriellen Abwasser zugeführt und falls notwendig weiter neutralisiert werden.
2.2 Beitragendes Szenarium zur Beherrschung der Arbeitnehmerexposition für: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19, PROC22, PROC23, PROC24		
Aktivität	Die oben genannte Verfahrenskategorie (PROC) ist die wichtigste, andere Kategorien (PROC1-27) sind jedoch ebenfalls möglich.	
Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
	Stoffkonzentration im Gemisch/Artikel	Konzentration der Substanz im Produkt: >2%
	Physikalische Form (zum Zeitpunkt der Verwendung)	flüssig
	Physikalische Form (zum Zeitpunkt der Verwendung)	Fest, niedrige Staubigkeit
Frequenz und Dauer der Verwendung	Einsatzhäufigkeit	8 Stunden / Tag
	Einsatzhäufigkeit	200 Tage / Jahr
Technische Voraussetzungen und Maßnahmen, um eine Dispersion von der Quelle zum Arbeiter einzuschränken	Anwendungsgebiet	Industrielle Verwendung
	Verwendung von geschlossenen Systemen oder Abdeckung von offenen Gebinden. Transport über Leitungen, technische Fassbefüllung/ -entleerung mit automatisierten Systemen (Ansaugpumpen etc.) Verwendung von Zangen, Haltestangen mit langen Griffen mit manueller Nutzung, um direkten Kontakt und Exposition durch Spritzer zu vermeiden (nicht überkopf arbeiten).	
Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzung, Dispersion und Exposition	Anwendungsgebiet	Industrielle Verwendung
	Wo möglich: Manuelle Prozesse durch automatisierte oder geschlossene Prozesse ersetzen. Dies würde reizende Nebel, Zerstäubungen und später potentielle Spritzer vermeiden. Potentiell gefährdete Arbeiter werden geschult um a.) die Arbeit ohne Atemschutz zu vermeiden, b.) die ätzenden Eigenschaften (insbesondere die Risiken der Einatmung) zu verstehen und c.) den Sicherheitsvorschriften des Arbeitgebers Folge zu leisten. Der Arbeitgeber hat sich über die Verfügbarkeit der erforderlichen PSA zu vergewissern.	
Bedingungen und Maßnahmen bezüglich persönlichen Schutz, Hygiene und Gesundheitsbewertung	Anwendungsgebiet	Industrielle Verwendung
	Im Falle von Staub oder Nebelbildung: Atemschutz mit zugelassenem Filter (P2) ist zu tragen. Tragen von chemisch resistenten Handschuhen. Material: Butylkautschuk, PVC, Polychloropren mit Naturlatexauskleidung, Materialdicke: 0,5 mm, Durchdringungszeit: > 480 min Material: Nitrilkautschuk, Fluorkautschuk, Materialdicke: 0,35-0,4 mm, Durchdringungszeit: > 480 min	

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Falls Spritzer wahrscheinlich auftreten werden:
 Eng anliegende Schutzbrille oder Gesichtsschutz ist zu tragen
 Geeignete Schutzkleidung, Schürzen, Schilde und Mäntel tragen.
 Gummi- oder Plastikstiefel

3. Expositionsabschätzung und Verweis auf deren Quelle**Umwelt**

Die Wirkung sowie die dazugehörige Risikobewertung auf die aquatische Umwelt berücksichtigen nur Effekte auf Organismen/ Ökosysteme, die auf möglichen Änderungen des pH-Wertes basieren, da eine im Vergleich zur (potentiellen) pH-Änderung unbedeutende Toxizität der Metallionen zu erwarten ist. Die hohe Wasserlöslichkeit und der sehr geringe Dampfdruck deuten darauf hin, dass der Stoff vorwiegend im Wasser nachzuweisen sein wird. Wenn die umweltbezogenen Risikominimierungsmaßnahmen implementiert sind erfolgt keine Exposition des belebten Schlammes der Abwasseraufbereitungsanlage und keine Exposition des aufnehmenden Oberflächenwassers. Das Sedimentkompartiment wurde nicht berücksichtigt, da es für den Stoff nicht relevant ist. Bei Abgabe in das wässrige Kompartiment ist eine Sorption an Sedimentpartikel vernachlässigbar. Signifikante Emissionen in die Luft werden aufgrund des sehr niedrigen Dampfdrucks der Substanz nicht erwartet. Bei einer Luftemission als Aerosol auf Wasserbasis wird der Stoff durch seine Reaktion mit CO₂ (oder Säuren) rasch neutralisiert. Signifikante Emissionen in die terrestrische Umwelt sind nicht zu erwarten. Der Applikationspfad für Schlamm ist nicht relevant für die Emission in landwirtschaftliche Böden, da keine Sorption des Stoffes an Schwebstoffe in Kläranlagen/ Abwasseraufbereitungsanlagen auftreten wird. Bei einer Abgabe in den Boden ist die Sorption an Bodenpartikel vernachlässigbar. Abhängig von der Pufferkapazität des Bodens wird OH⁻ im Erdbodenporenwasser neutralisiert oder es kommt zu einem pH- Anstieg. Der Stoff ist nicht bioakkumulierend.

Arbeitnehmer

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24: ECETOC TRA worker v3

Beitragendes Szenario	Spezifische Bedingungen	Expositionswege	Expositionsgrad	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24	flüssig, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,17mg/m ³	---
PROC1, PROC2	fest, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,01mg/m ³	---
PROC3, PROC15	fest, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,1mg/m ³	---
PROC4, PROC5, PROC14	fest, kein Atemschutz (RPE), Mit lokaler Abgasentlüftung	Arbeiter - inhalativ, kurzfristig - lokal	0,2mg/m ³	---
PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	fest, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,5mg/m ³	---

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PROC23	fest, mit RPE (90%)	Arbeiter - inhalativ, kurzfristig - lokal	0,4mg/m ³	---
PROC24	fest, mit RPE (90%)	Arbeiter - inhalativ, kurzfristig - lokal	0,5mg/m ³	---

Dieser Stoff ist korrosiv. Bei der Handhabung ätzender Stoffe und Formulierungen tritt ein direkter Kontakt nur gelegentlich auf. Es wird angenommen, dass eine wiederholte tägliche Exposition vernachlässigt werden kann. Die dermale Exposition gegenüber dem Stoff wurde nicht quantifiziert. Bei gewöhnlichen Umgangs- und Verwendungsbedingungen ist der Stoff nicht systemisch verfügbar. Das Auftreten von systemischen Effekten nach dermalen oder inhalativer Exposition ist nicht zu erwarten. Basierend auf Arbeitsplatzmessungen und bei Befolgen der vorgegebenen Risikominimierungsmaßnahmen zur Kontrolle der Exposition von Arbeitern und Gewerbe, ist die inhalative Exposition unter dem DNEL.

4. Leitlinien für den nachgeschalteten Anwender zur Bewertung, ob er innerhalb der im Expositionsszenarium festgelegten Grenzen arbeitet

Der nachgeschaltete Anwender arbeitet in den Grenzen des Expositionsszenarios, wenn er entweder die oben angegebenen Risikomanagementmaßnahmen anwendet oder er beweisen kann, dass seine Verwendungsbedingungen und implementierten Risikomanagementmaßnahmen gleichwertig sind. Dieser Nachweis muss erbracht werden, indem gezeigt wird, dass diese Maßnahmen die inhalative und dermale Exposition auf Werte unterhalb des zugeordneten DNEL (siehe unten) begrenzen (vorausgesetzt die fraglichen Prozesse und Aktivitäten sind durch die o.g. PROCs abgedeckt).

Falls keine Meßdaten verfügbar sind kann der nachgeschaltete Anwender Gebrauch von geeigneten Werkzeugen machen (z.B. ECETOC TRA)

Wichtiger Hinweis: Durch den Nachweis einer sicheren Verwendung bei dem Vergleich der Expositionsabschätzungen mit dem Langzeit DNEL ist der Kurzzeit DNEL ebenfalls abgedeckt (gemäß Richtlinie R.14 können akute Expositionen durch Multiplikation der Langzeitexpositionsabschätzung mit dem Faktor 2 abgeleitet werden).

Über die REACH Stoffsicherheitsbeurteilung herausgehende zusätzliche Ratschläge für eine gute Vorgangsweise

Lokale Absaugung ist nicht notwendig, ist jedoch Bestandteil der Guten Praxis.
Allgemeine Belüftung ist eine gute Praxis sofern keine lokale Absaugung ist.

Natronlauge 50 %**1. Kurzbezeichnung des Expositionsszenariums 4: Gewerbliche Verwendung**

Hauptanwendergruppen	SU 22: Gewerbliche Verwendungen: Öffentlicher Bereich (Verwaltung, Bildung, Unterhaltung, Dienstleistungen, Handwerk)
Verfahrenskategorien	<p>PROC1: Verwendung in geschlossenem Verfahren, keine Expositionswahrscheinlichkeit</p> <p>PROC2: Verwendung in geschlossenem, kontinuierlichem Verfahren mit gelegentlicher kontrollierter Exposition</p> <p>PROC3: Verwendung in geschlossenem Chargenverfahren (Synthese oder Formulierung)</p> <p>PROC4: Verwendung in Chargen- und anderen Verfahren (Synthese), bei denen die Möglichkeit einer Exposition besteht</p> <p>PROC5: Mischen oder Vermengen in Chargenverfahren zur Formulierung von Zubereitungen und Erzeugnissen (mehrfacher und/oder erheblicher Kontakt)</p> <p>PROC8a: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in nicht speziell für nur ein Produkt vorgesehenen Anlagen</p> <p>PROC8b: Transfer des Stoffes oder der Zubereitung (Beschickung/ Entleerung) aus/ in Gefäße/ große Behälter in speziell für nur ein Produkt vorgesehenen Anlagen</p> <p>PROC9: Transfer des Stoffes oder der Zubereitung in kleine Behälter (spezielle Abfüllanlage, einschließlich Wägung)</p> <p>PROC10: Auftragen durch Rollen oder Streichen</p> <p>PROC11: Nicht-industrielles Sprühen</p> <p>PROC13: Behandlung von Erzeugnissen durch Tauchen und Gießen</p> <p>PROC15: Verwendung als Laborreagenz</p> <p>PROC19: Handmischen mit engem Kontakt und nur persönlicher Schutzausrüstung</p> <p>PROC23: Offene Verarbeitung und Transfer mit Mineralien/ Metallen bei erhöhter Temperatur</p> <p>PROC24: (Mechanische) Hochleistungsbearbeitung von Stoffen, die in Materialien und/oder Erzeugnissen gebunden sind</p>
Umweltfreisetzungskategorien	<p>ERC8a: Breite disperse Innenverwendung von Verarbeitungshilfsstoffen in offenen Systemen</p> <p>ERC8b: Breite disperse Innenverwendung von reaktiven Stoffen in offenen Systemen</p> <p>ERC8d: Breite disperse Außenverwendung von Verarbeitungshilfsstoffen in offenen Systemen</p> <p>ERC9a: Breite disperse Innenverwendung von Stoffen in geschlossenen Systemen</p>

2.1 Beitragendes Szenarium zur Beherrschung der Umweltexposition für: ERC8a, ERC8b, ERC8d, ERC9a

Aktivität	Die oben genannte Umweltfreisetzungskategorie(ERC) beschreibt die wichtigste- Andere Kategorien (ERC1-12) sind jedoch ebenfalls möglich.	
Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
Andere vorgegebene Betriebsbedingungen welche die Umweltexposition beeinflussen	Kontinuierliche Exposition	
Technische Auflagen und Maßnahmen auf Prozessebene, um Freisetzung zu verhüten		
Technische Auflagen und Maßnahmen vor Ort, um Abflüsse, Luftemissionen zu vermindern oder einzuschränken		
Organisationsmaßnahmen zur Verhütung/Einschränkung von	Anwendungsgebiet	Gewerbliche Verwendung
	Wasser	<p>Erfordert die regelmäßige Kontrolle des pH Wertes während der Einleitung in offene Gewässer., Allgemein soll die Abwassereinleitung so erfolgen, dass die pH Änderungen im Oberflächenwasser minimiert werden., Allgemein tolerieren die meisten aquatischen Organismen pH Werte im Bereich von 6-9. Dies spiegelt sich auch in der Beschreibung der OECD Standardtests mit aquatischen</p>

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Freisetzungen von der Anlage		Organismen wider., Umweltbezogene Risikominimierungsmaßnahmen zielen darauf ab, die Entsorgung von Stoffen in kommunales Abwasser oder Oberflächenwasser zu vermeiden, für den Fall, dass bei dieser Entsorgung eine signifikante pH-Änderung zu erwarten ist.
Bedingungen und Maßnahmen bezüglich externe Abfallbehandlung für eine Entsorgung	Methoden zur Entsorgung	Abwasser sollte wiederverwertet oder dem industriellen Abwasser zugeführt und falls notwendig weiter neutralisiert werden.

2.2 Beitragendes Szenarium zur Beherrschung der Arbeitnehmerexposition für: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19, PROC22, PROC23, PROC24

Aktivität	Die oben genannte Verfahrenskategorie (PROC) ist die wichtigste, andere Kategorien (PROC1-27) sind jedoch ebenfalls möglich.	
Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
	Stoffkonzentration im Gemisch/Artikel	Konzentration der Substanz im Produkt: >2%
	Physikalische Form (zum Zeitpunkt der Verwendung)	flüssig
	Physikalische Form (zum Zeitpunkt der Verwendung)	Fest, niedrige Staubigkeit
Frequenz und Dauer der Verwendung	Einsatzhäufigkeit	8 Stunden / Tag
	Einsatzhäufigkeit	200 Tage / Jahr
Technische Voraussetzungen und Maßnahmen, um eine Dispersion von der Quelle zum Arbeiter einzuschränken	Anwendungsgebiet	Gewerbliche Verwendung
	Verwendung von Zangen, Haltestangen mit langen Griffen mit manueller Nutzung, um direkten Kontakt und Exposition durch Spritzer zu vermeiden (nicht überkopf arbeiten). Wo möglich: Verwendung spezieller Verteiler und Pumpen, die speziell auf die Vermeidung von Spritzern/Überläufen/Exposition ausgelegt sind.	
Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzung, Dispersion und Exposition	Anwendungsgebiet	Gewerbliche Verwendung
	Wo möglich: Manuelle Prozesse durch automatisierte oder geschlossene Prozesse ersetzen. Dies würde reizende Nebel, Zerstäubungen und später potentielle Spritzer vermeiden. Potentiell gefährdete Arbeiter werden geschult um a.) die Arbeit ohne Atemschutz zu vermeiden, b.) die ätzenden Eigenschaften (insbesondere die Risiken der Einatmung) zu verstehen und c.) den Sicherheitsvorschriften des Arbeitgebers Folge zu leisten. Der Arbeitgeber hat sich über die Verfügbarkeit der erforderlichen PSA zu vergewissern.	
Bedingungen und Maßnahmen bezüglich persönlichen Schutz, Hygiene und Gesundheitsbewertung	Anwendungsgebiet	Gewerbliche Verwendung
	Im Falle von Staub oder Nebelbildung: Atemschutz mit zugelassenem Filter (P2) ist zu tragen. Tragen von chemisch resistenten Handschuhen. Material: Butylkautschuk, PVC, Polychloropren mit Naturlatexauskleidung, Materialdicke: 0,5 mm, Durchdringungszeit: > 480 min Material: Nitrilkautschuk, Fluorkautschuk, Materialdicke: 0,35-0,4 mm, Durchdringungszeit: > 480 min Falls Spritzer wahrscheinlich auftreten werden: Eng anliegende Schutzbrille oder Gesichtsschutz ist zu tragen Geeignete Schutzkleidung, Schürzen, Schilde und Mäntel tragen. Gummi- oder Plastiktiefel	

Natronlauge 50 %**3. Expositionsabschätzung und Verweis auf deren Quelle****Umwelt**

Die Wirkung sowie die dazugehörige Risikobewertung auf die aquatische Umwelt berücksichtigen nur Effekte auf Organismen/ Ökosysteme, die auf möglichen Änderungen des pH-Wertes basieren, da eine im Vergleich zur (potentiellen) pH-Änderung unbedeutende Toxizität der Metallionen zu erwarten ist. Die hohe Wasserlöslichkeit und der sehr geringe Dampfdruck deuten darauf hin, dass der Stoff vorwiegend im Wasser nachzuweisen sein wird. Wenn die umweltbezogenen Risikominimierungsmaßnahmen implementiert sind erfolgt keine Exposition des belebten Schlammes der Abwasseraufbereitungsanlage und keine Exposition des aufnehmenden Oberflächenwassers. Das Sedimentkompartiment wurde nicht berücksichtigt, da es für den Stoff nicht relevant ist. Bei Abgabe in das wässrige Kompartiment ist eine Sorption an Sedimentpartikel vernachlässigbar. Signifikante Emissionen in die Luft werden aufgrund des sehr niedrigen Dampfdrucks der Substanz nicht erwartet. Bei einer Luftermission als Aerosol auf Wasserbasis wird der Stoff durch seine Reaktion mit CO₂ (oder Säuren) rasch neutralisiert. Signifikante Emissionen in die terrestrische Umwelt sind nicht zu erwarten. Der Applikationspfad für Schlamm ist nicht relevant für die Emission in landwirtschaftliche Böden, da keine Sorption des Stoffes an Schwebstoffe in Kläranlagen/ Abwasseraufbereitungsanlagen auftreten wird. Bei einer Abgabe in den Boden ist die Sorption an Bodenpartikel vernachlässigbar. Abhängig von der Pufferkapazität des Bodens wird OH⁻ im Erdbodenporenwasser neutralisiert oder es kommt zu einem pH- Anstieg. Der Stoff ist nicht bioakkumulierend.

Arbeitnehmer

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24: ECETOC TRA worker v3

Beitragendes Szenario	Spezifische Bedingungen	Expositionswege	Expositionsgrad	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24	flüssig, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,17mg/m ³	---
PROC1, PROC2	fest, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,01mg/m ³	---
PROC3, PROC15	fest, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,1mg/m ³	---
PROC4, PROC5, PROC11, PROC14	fest, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,2mg/m ³	---
PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	fest, keine lokale Absaugung, kein Atemschutz (RPE)	Arbeiter - inhalativ, kurzfristig - lokal	0,5mg/m ³	---
PROC23	fest, mit RPE (90%)	Arbeiter - inhalativ, kurzfristig - lokal	0,4mg/m ³	---
PROC24	fest, mit RPE (90%)	Arbeiter - inhalativ,	0,5mg/m ³	---

Natronlauge 50 %

kurzfristig - lokal

Dieser Stoff ist korrosiv. Bei der Handhabung ätzender Stoffe und Formulierungen tritt ein direkter Kontakt nur gelegentlich auf. Es wird angenommen, dass eine wiederholte tägliche Exposition vernachlässigt werden kann. Die dermale Exposition gegenüber dem Stoff wurde nicht quantifiziert. Bei gewöhnlichen Umgangs- und Verwendungsbedingungen ist der Stoff nicht systemisch verfügbar. Das Auftreten von systemischen Effekten nach dermalen oder inhalativer Exposition ist nicht zu erwarten. Basierend auf Arbeitsplatzmessungen und bei Befolgen der vorgegebenen Risikominimierungsmaßnahmen zur Kontrolle der Exposition von Arbeitern und Gewerbe, ist die inhalative Exposition unter dem DNEL.

4. Leitlinien für den nachgeschalteten Anwender zur Bewertung, ob er innerhalb der im Expositionsszenarium festgelegten Grenzen arbeitet

Der nachgeschaltete Anwender arbeitet in den Grenzen des Expositionsszenarios, wenn er entweder die oben angegebenen Risikomanagementmaßnahmen anwendet oder er beweisen kann, dass seine Verwendungsbedingungen und implementierten Risikomanagementmaßnahmen gleichwertig sind. Dieser Nachweis muss erbracht werden, indem gezeigt wird, dass diese Maßnahmen die inhalative und dermale Exposition auf Werte unterhalb des zugeordneten DNEL (siehe unten) begrenzen (vorausgesetzt die fraglichen Prozesse und Aktivitäten sind durch die o.g. PROCs abgedeckt).

Falls keine Meßdaten verfügbar sind kann der nachgeschaltete Anwender Gebrauch von geeigneten Werkzeugen machen (z.B. ECETOC TRA)

Wichtiger Hinweis: Durch den Nachweis einer sicheren Verwendung bei dem Vergleich der Expositionsabschätzungen mit dem Langzeit DNEL ist der Kurzzeit DNEL ebenfalls abgedeckt (gemäß Richtlinie R.14 können akute Expositionen durch Multiplikation der Langzeitexpositionsabschätzung mit dem Faktor 2 abgeleitet werden).

Über die REACH Stoffsicherheitsbeurteilung herausgehende zusätzliche Ratschläge für eine gute Vorgangsweise

Lokale Absaugung ist nicht notwendig, ist jedoch Bestandteil der Guten Praxis.
Allgemeine Belüftung ist eine gute Praxis sofern keine lokale Absaugung ist.

Natronlauge 50 %**1. Kurzbezeichnung des Expositionsszenariums 5: Private Verwendung**

Hauptanwendergruppen	SU 21: Verbraucherverwendungen: Private Haushalte (= Allgemeinheit = Verbraucher)
Chemikalienkategorie	PC20: Produkte wie pH-Regulatoren, Flockungsmittel, Fällungsmittel, Neutralisationsmittel PC35: Wasch- und Reinigungsmittel (einschließlich Produkte auf Lösungsmittelbasis) PC39: Kosmetika, Körperpflegeprodukte
Umweltfreisetzungskategorien	ERC8a: Breite disperse Innenverwendung von Verarbeitungshilfsstoffen in offenen Systemen ERC8b: Breite disperse Innenverwendung von reaktiven Stoffen in offenen Systemen ERC8d: Breite disperse Außenverwendung von Verarbeitungshilfsstoffen in offenen Systemen ERC9a: Breite disperse Innenverwendung von Stoffen in geschlossenen Systemen
Aktivität	Anmerkung: Dieses Expositionsszenario ist ausschließlich für eine entsprechend der Qualität des gelieferten Stoffes geeigneten Verwendung relevant

2.1 Beitragendes Szenarium zur Beherrschung der Umweltexposition für: ERC8a, ERC8b, ERC8d, ERC9a

Im privaten Endverbrauch wird NaOH zur Rohr- und Leitungsreinigung, Holzbehandlung und zur Herstellung von Seife verwendet, NaOH wird auch in Batterien und Ofenreinigungs-Pads verwendet.

Aktivität	Die oben genannten Umweltfreisetzungskategorien (ERC) sind die wichtigsten, andere Kategorien weitverbreiteter Verwendung sind ebenfalls möglich (ERC8-ERC11b).	
Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
Technische Auflagen und Maßnahmen auf Prozessebene, um Freisetzung zu verhüten Technische Auflagen und Maßnahmen vor Ort, um Abflüsse, Luftemissionen und Eindringen in den Erdboden zu vermindern oder einzuschränken Organisationsmaßnahmen zur Verhütung/Einschränkung von Freisetzungen von der Anlage	Es gibt keine besonderen umweltbezogenen Risikominimierungsmaßnahmen.	
Bedingungen und Maßnahmen bezüglich externe Abfallbehandlung für eine Entsorgung	Methoden zur Entsorgung	Dieses Material sowie dessen Gebinde muss sachgerecht und sicher entsorgt werden (z. B. durch Abgabe bei einer öffentlichen Müllverwertung), Leere Container können über den normalen Hausmüll entsorgt werden., Batterien sollen so oft wie möglich wiederverwertet werden (z.B. durch Rückgabe in öffentlichen Rückgabestellen), Rückgewinnung der Stoffe aus Alkalibatterien umfasst das Leeren, Sammlung und Neutralisierung des Elektrolyten

2.2 Beitragendes Szenarium zur Beherrschung der Verbraucherexposition für: PC20, PC35, PC39

Aktivität	Natriumhydroxid kann in vielen unterschiedlichen Produktkategorien (PC) verwendet werden: PC20,35,39 (Neutralisierungsreagenzien, Reinigungsmittel, Kosmetika, Körperpflegeprodukte)., NaOH kann außerdem in anderen Produktkategorien (PC) in geringen Konzentrationen verwendet werden. Zum Beispiel PC3 (bis zu 0.01%). PC8 (bis zu 0.1 %). PC28 und PC31 (bis zu 0.002%). Der Stoff kann außerdem in den verbleibenden Produktkategorien (PC0-40) verwendet werden., Andere Produktkategorien (PC) werden in diesem
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Natronlauge 50 %

	Expositionsszenario nicht ausdrücklich berücksichtigt.	
Produkteigenschaften	Stoffkonzentration im Gemisch/Artikel	Deckt prozentualen Anteil des Stoffes von bis zu 100 % im Produkt ab.
	Physikalische Form (zum Zeitpunkt der Verwendung)	flüssig
	Physikalische Form (zum Zeitpunkt der Verwendung)	Fest, niedrige Staubigkeit
Bedingungen und Maßnahmen zum Schutz des Verbrauchers (z.B. Verhaltensratschläge, persönlicher Schutz, Gesundheitspflege)	Verbrauchermaßnahmen	Verwendung resistenter Kennzeichnung-Gebinde um die Selbstzerstörung und den Verlust der Kennzeichnungsintegrität bei normaler Verwendung zu vermeiden. Mangelnde Qualität der Gebinde führt zu einem Verlust an Informationen zu Gefahren, Risiken und Gebrauchsanweisungen. Es ist ratsam, nur in sehr viskosen Zubereitungen freizusetzen. Die Lieferung von geringen Mengen ist empfehlenswert. Zur Verwendung in Batterien ist der Einsatz vollständig abgedichteter Erzeugnisse mit längerer Betriebslebensdauer notwendig. Es ist notwendig, dass dem Verbraucher immer verbesserte Gebrauchsanweisungen und Produktinformationen angeboten werden. Dies ermöglicht eindeutig eine effiziente Verminderung des Missbrauchsrisikos. Um die Anzahl der Unfälle mit Beteiligung (junger) Kinder und älteren Menschen zu minimieren, wird empfohlen, diese Produkte in der Abwesenheit von Kindern oder anderen potentiell empfindlichen Gruppen zu verwenden. Nicht in Lüftungsöffnungen oder -schlitzen anwenden. Darf nicht in die Hände von Kindern gelangen.
	Verbrauchermaßnahmen	Im Falle von Staub oder Nebelbildung: Atemschutz mit zugelassenem Filter (P2) ist zu tragen. Tragen von undurchlässigen, chemisch resistenten Schutzhandschuhen. Falls Spritzer wahrscheinlich auftreten werden: Eng anliegende Schutzbrille oder Gesichtsschutz ist zu tragen

3. Expositionsabschätzung und Verweis auf deren Quelle**Umwelt**

Verbraucherverwendungen beziehen sich auf bereits verdünnte Produkte, die in der Kanalisation rasch weiter neutralisiert werden bis sie die Abwasseraufbereitungsanlage oder das Oberflächenwasser erreichen.

Verbraucher

PC39, PC20, PC35: ConsExpo und SprayExpo

Beitragendes Szenario	Spezifische Bedingungen	Expositionswege	Expositionsgrad	RCR
PC20, PC35, PC39	Nur für die kritischste Verwendung abgeschätzt,	Verbraucher - inhalativ, akut - lokal	0,3 - 1,6mg/m ³	< 1

Natronlauge 50 %

	(Verwendung des Stoffes in einem Offenreinigungsspray)			
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Die berechnete Kurzzeitexposition liegt geringfügig über dem inhalativen Langzeit DNEL, ist jedoch niedriger als der Kurzzeit-Arbeitsplatzgrenzwert. Der Stoff wird durch seine Reaktion mit CO₂ (oder anderen Säuren) rasch neutralisiert. Null-Exposition der Verbraucher gegenüber in Batterien enthaltenen Stoffen, da Batterien abgedichtete Erzeugnisse mit langer Betrieb lebensdauer darstellen.

4. Leitlinien für den nachgeschalteten Anwender zur Bewertung, ob er innerhalb der im Expositionsszenarium festgelegten Grenzen arbeitet

Der nachgeschaltete Anwender arbeitet in den Grenzen des Expositionsszenarios, wenn er entweder die oben angegebenen Risikomanagementmaßnahmen anwendet oder er beweisen kann, dass seine Verwendungsbedingungen und implementierten Risikomanagementmaßnahmen gleichwertig sind. Dieser Nachweis muss erbracht werden, indem gezeigt wird, dass diese Maßnahmen die inhalative und dermale Exposition auf Werte unterhalb des zugeordneten DNEL (siehe unten) begrenzen (vorausgesetzt die fraglichen Prozesse und Aktivitäten sind durch die o.g. PCs abgedeckt).

Falls keine Meßdaten verfügbar sind kann der nachgeschaltete Anwender Gebrauch von geeigneten Werkzeugen (z.B. ConsEXpo) machen.

Wichtiger Hinweis: Durch den Nachweis einer sicheren Verwendung bei dem Vergleich der Expositionsabschätzungen mit dem Langzeit DNEL ist der Kurzzeit DNEL ebenfalls abgedeckt (gemäß Richtlinie R.14 können akute Expositionen durch Multiplikation der Langzeitexpositionsabschätzung mit dem Faktor 2 abgeleitet werden).

Safety data sheet
according to 1907/2006/EC, Article 31



Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name:** Activated carbon

Aktivkohle

· **Article number:** 86944030

· **CAS Number:**

7440-44-0

· **EC number:**

231-153-3

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

· **Application of the substance / the mixture** Absorbent

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Heimerle + Meule GmbH
Dennigstrasse 16
D-75179 Pforzheim

Telefon +49 (0) 7231 940-0
Telefax +49 (0) 7231 940-2199
www.heimerle-meule.com

· **Further information obtainable from:**

Abteilung BASU - Bau/Arbeitssicherheit/Umwelt
Department BASU - Construction / Occupational Safety / Environment
sds@heimerle-meule.com

IATA - 24h Emergency Contact - IATA - 24h Emergency Contact -
(Dangerous goods emergency number)
+49 172 739 6970

· **1.4 Emergency telephone number:**

DEUTSCHLAND - GERMANY:

Vergiftungs-Informationen-Zentrale Freiburg, ++49 761 19240 (24 h)
(Poisoning Information Center)

GREAT BRITAIN:

National Poisons Information Service +44 121 507 4123

Members of the public seeking specific information on poisons should contact:

In England and Wales: NHS 111 - dial 111 - In Scotland: NHS 24 - dial 111

ITALY:

Istituto Superiore di Sanità +3906499906140

KROATIA - REPUBLIKA HRVATSKA:

(+385) 01 2348 342

ESTLAND - ESTONIA:

Tervisemeti Mürgistusteabekeskuse 16662, (+342) 7914 794

LETTLAND - LATVIA:

Latvijas Vides, ģeoloģijas un meteoroloģijas centrs (+371) 670 32600

LITAUEN - LIETUVOS RESPUBLIKA:

Apsinuodijimų informacijos biuras +370 (85) 2362052

Safety data sheet

according to 1907/2006/EC, Article 31



Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

Trade name: Activated carbon
Aktivkohle

(Contd. of page 1)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The substance is not classified, according to the CLP regulation.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:**
EUH210 Safety data sheet available on request.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.1 Chemical characterisation: Substances**
- **CAS No. Description**
CAS: 7440-44-0 Aktivkohle
- **Identification number(s)**
- **EC number:** 231-153-3

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**
Personal protection for the First Aider.
No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Rinse with warm water.
Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:**
Rinse out mouth and then drink plenty of water.
If symptoms persist consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

Trade name: Activated carbon
Aktivkohle

(Contd. of page 2)

- **5.3 Advice for firefighters**
- **Protective equipment:**



Wear self-contained respiratory protective device.

- **Additional information**

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
 Wear protective equipment. Keep unprotected persons away.
 Use respiratory protective device against the effects of fumes/dust/aerosol.
- **6.2 Environmental precautions:** No special measures required.
- **6.3 Methods and material for containment and cleaning up:**
 Dispose of the material collected according to regulations.
- **6.4 Reference to other sections** No dangerous substances are released.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 Any unavoidable deposit of dust must be regularly removed.
 Keep receptacles tightly sealed.
 The usual precautionary measures are to be adhered to when handling chemicals.
 Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.
 Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Only store in heated receptacles.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
 Store in cool, dry conditions in well sealed receptacles.
 Store in dry conditions.
- **Storage class:** 13
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** No further data; see item 7.

- **Ingredients with limit values that require monitoring at the workplace:**

CAS: 7440-44-0 Aktivkohle

WEL (Great Britain)	Long-term value: 10×10^{-4} mg/m ³ *inhalable dust **respirable
AGW (Germany)	Long-term value: 1.25×10^{-4} mg/m ³ 2(II); *alveolengängig **einstaubbar; AGS, DFG

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31



Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

Trade name: Activated carbon
Aktivkohle

(Contd. of page 3)

· **Regulatory information**

WEL (Great Britain): EH40/2020

AGW (Germany): TRGS 900

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Do not inhale gases / fumes / aerosols.

· **Respiratory protection:**

Use suitable respiratory protective device only when aerosol or mist is formed.

Beware: Filter masks provide protection for a short period of time only. They should only be used in exceptional cases, that is if a small amount of the substance has spilled out or in order to fight spillages and fire.

· **Recommended filter device for short term use:** Filter P2

· **Protection of hands:**

Sensibilisation by the components in the glove materials is possible.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Prior to working with gloves the rubbing in with tanniferous skin-protecting agents for the avoidance of skin softening due to perspiration is recommended.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Goggles recommended

· **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Powder

Colour: Black

· **Odour:** Odourless

· **Odour threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Melting point/freezing point: ~3,550°C (~38.450°F)

Initial boiling point and boiling range: 4,827°C (40.727°F)

· **Flash point:** Not applicable.

· **Flammability (solid, gas):** Product is not flammable.

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Not determined.

· **Explosive properties:** Product does not present an explosion hazard.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31



Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

Trade name: Activated carbon
Aktivkohle

(Contd. of page 4)

· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapour pressure:	Not applicable.
· Density at 20°C (68°F):	1 g/cm ³ (8.35 lbs/gal)
· Bulk density:	150 kg/m ³
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water:	Not determined.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** Reacts with strong oxidising agents.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

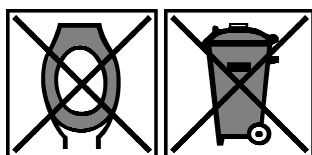
Trade name: Activated carbon
Aktivkohle

(Contd. of page 5)

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not hazardous for water.
- **12.5 Results of PBT and vPvB assessment** Not applicable.
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**



Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Contact manufacturer for recycling information.

- **Waste disposal key:**
 The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
- **Uncleaned packaging:**
- **Recommendation:**
 Disposal must be made according to official regulations.
 Packaging which is uncleaned or soiled with product remains is to be treated like the product itself
 Packaging free of product remains is to be supplied refuse for recycling. Only if no adequate collecting system is available, they may be disposed of through the domestic rubbish

SECTION 14: Transport information

- | | |
|---|-----------------|
| · 14.1 UN-Number
· ADR, ADN, IMDG, IATA | Void |
| · 14.2 UN proper shipping name
· ADR, ADN, IMDG, IATA | Void |
| · 14.3 Transport hazard class(es)
· ADR, ADN, IMDG, IATA
· Class | Void |
| · 14.4 Packing group
· ADR, IMDG, IATA | Void |
| · 14.5 Environmental hazards: | Not applicable. |
| · 14.6 Special precautions for user | Not applicable. |
| · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31



Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

Trade name: Activated carbon
Aktivkohle

(Contd. of page 6)

· **Transport/Additional information:**

· **IATA**· **Remarks:**

24h emergency contact -
(Dangerous goods emergency number)

+49 172 739 6970

· **UN "Model Regulation":**

Void

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC

· **GADSL - Global Automotive Declarable Substance List** Substance is not listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** Substance is not listed.

· **National regulations:**

· **Waterhazard class:** Generally not hazardous for water.

· **Other regulations, limitations and prohibitive regulations -**

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Reasons for revise**

If necessary, this safety data sheet can be revised according to legal guidelines.

Our current version for your reference is available on our website
www.heimerle-meule.com

· **Department issuing SDS:**

Abteilung BASU - Bau/Arbeitssicherheit/Umwelt

Department BASU - Construction / Occupational Safety / Environment

sds@heimerle-meule.com

· **Contact:**

Herr Thomas Knuth

thomas.knuth@heimerle-meule.com

sds@heimerle-meule.com

(Contd. on page 8)

Safety data sheet
according to 1907/2006/EC, Article 31



Printing date: 07.12.2021

Version number 2

Revision: 07.12.2021

Trade name: Activated carbon
Aktivkohle

(Contd. of page 7)

· Abbreviations and acronyms:

AwSV: Ordinance on facilities for handling water-polluting substances (German regulation).

TRGS: Technical rules for hazardous substances (German regulation)

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

GB

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 1 of 9

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Buz® Defoam

UFI: 8740-Y0N1-Q00H-7FNJ

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

EuPCS: PC-TEC-17 Processing aids

Process categories [PROC]: 8, 10

1.3. Details of the supplier of the safety data sheet

Company name: BUZIL-WERK Wagner GmbH & Co. KG

Street: Fraunhofer Str. 17

Place: D-87700 Memmingen

Telephone: +49 (0) 8331 930-6

Telefax: +49 (0) 8331 930-880

e-mail: info@buzil.de

Contact person: info@buzil.de

Internet: www.buzil.com

1.4. Emergency telephone number: +49 (0) 8331 930-6 (08:00 - 16:00 h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

2.2. Label elements

Regulation (EC) No 1272/2008

Special labelling of certain mixtures

EUH208 Contains Methylchloroisothiazolinone and 2-Methylisothiazol-3(2H)-one. May produce an allergic reaction.

EUH210 Safety data sheet available on request.

2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 2 of 9

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
55965-84-9	reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)			< 0,0015 %
	611-341-5	613-167-00-5		
	Acute Tox. 2, Acute Tox. 2, Acute Tox. 3, Skin Corr. 1C, Eye Dam. 1, Skin Sens. 1A, Aquatic Acute 1, Aquatic Chronic 1; H330 H310 H301 H314 H318 H317 H400 H410 EUH071			
2682-20-4	2-Methylisothiazol-3(2H)-one			< 0,0005 %
	220-239-6	613-326-00-9		
	Acute Tox. 2, Acute Tox. 3, Acute Tox. 3, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1A, Aquatic Acute 1, Aquatic Chronic 1; H330 H311 H301 H314 H318 H317 H400 H410 EUH071			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
55965-84-9	611-341-5	reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	< 0,0015 %
	inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); dermal: ATE = 50 mg/kg; oral: ATE = 100 mg/kg Skin Corr. 1C; H314: >= 0,6 - 100 Skin Irrit. 2; H315: >= 0,06 - < 0,6 Eye Dam. 1; H318: >= 0,6 - 100 Eye Irrit. 2; H319: >= 0,06 - < 0,6 Skin Sens. 1A; H317: >= 0,0015 - 100 Aquatic Acute 1; H400: M=100 Aquatic Chronic 1; H410: M=100		
2682-20-4	220-239-6	2-Methylisothiazol-3(2H)-one	< 0,0005 %
	inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); dermal: LD50 = 300 mg/kg; oral: LD50 = 100 mg/kg Skin Sens. 1A; H317: >= 0,0015 - 100 Aquatic Acute 1; H400: M=10 Aquatic Chronic 1; H410: M=1		

Labelling for contents according to Regulation (EC) No 648/2004

< 5 % non-ionic surfactants, preservation agents (2-Bromo-2-nitropropane-1,3-diol, Methylchloroisothiazolinone/methylisothiazolinone, Methylisothiazolinone, Benzisothiazolinone).

Further Information

This mixture does not contain any substances presenting a health or environmental hazard within the meaning of the Dangerous Substances Directive 67/548/EEC or Regulation (EC) No 1272/2008, assigned a Community workplace exposure limit, classified as PBT/vPvB or included in the Candidate List.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated, saturated clothing immediately.

After inhalation

Provide fresh air.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap.

Take off contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 3 of 9

After ingestion

Rinse mouth immediately and drink plenty of water.
Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water spray jet
alcohol resistant foam
Carbon dioxide
Extinguishing powder

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products:
Carbon dioxide
Carbon monoxide

5.3. Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Use personal protection equipment.
Avoid contact with skin, eyes and clothes.

For non-emergency personnel

Ventilate affected area.

For emergency responders

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.
Do not allow to enter into soil/subsoil.

6.3. Methods and material for containment and cleaning up

For containment

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Treat the recovered material as prescribed in the section on waste disposal.

Other information

Collect in closed and suitable containers for disposal.
Ventilate affected area.

6.4. Reference to other sections

Personal protection equipment: see section 8
Disposal: see section 13

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 4 of 9

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid contact with skin, eyes and clothes.
Do not mix with other chemicals.
Use personal protection equipment.
When using do not eat, drink or smoke.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

Take off contaminated clothing.
Wash hands before breaks and after work.
When using do not eat, drink or smoke.

Further information on handling

No further relevant information available.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed.

Hints on joint storage

No special measures are necessary.

Further information on storage conditions

No further relevant information available.

7.3. Specific end use(s)

Defoamer

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

No information available.

8.2. Exposure controls



Appropriate engineering controls

No information available.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection. (EN 166)

Hand protection

Wear suitable gloves. (EN 374, Category III)
When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits.
Suitable material: NBR (Nitrile rubber) / Thickness of the glove material > 0,1 mm

Diluted ready-to-use solutions <=1%:

Protective gloves may be waived, if equivalent measures allowing for an increased skin stress because of wet

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 5 of 9

work are implemented (e. g. application of suitable skin protecting creams).

Skin protection

Wear suitable work clothing.

Respiratory protection

Usually no personal respirative protection necessary.

Thermal hazards

No further relevant information available.

Environmental exposure controls

Section 6: Accidental Release Measures

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	white
Odour:	characteristic

Test method

Melting point/freezing point:	approx. 0 °C
Boiling point or initial boiling point and boiling range:	approx. 100 °C
Flammability:	not applicable
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Flash point:	not applicable
Auto-ignition temperature:	not determined
Decomposition temperature:	not applicable
pH-Value (at 20 °C):	6,5 - 7,8
Viscosity / kinematic: (at 40 °C)	not determined
Water solubility: (at 20 °C)	miscible
Solubility in other solvents	not determined
Partition coefficient n-octanol/water:	not applicable
Vapour pressure:	not determined
Density (at 20 °C):	1,00 g/cm ³
Relative density:	not determined
Relative vapour density:	not determined
Particle characteristics:	not relevant

9.2. Other information

Other safety characteristics

Viscosity / dynamic: (at 25 °C)	< 10 mPa·s (50 1/s)
------------------------------------	---------------------

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 6 of 9

10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

10.4. Conditions to avoid

The product is stable under storage at normal ambient temperatures.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
55965-84-9	reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)				
	oral	ATE 100 mg/kg			
	dermal	ATE 50 mg/kg			
	inhalation vapour	ATE 0,5 mg/l			
	inhalation dust/mist	ATE 0,05 mg/l			
2682-20-4	2-Methylisothiazol-3(2H)-one				
	oral	LD50 100 mg/kg	Rat	ATE	
	dermal	LD50 300 mg/kg	Rat	ATE	
	inhalation vapour	ATE 0,5 mg/l			
	inhalation dust/mist	ATE 0,05 mg/l			

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Contains Methylchloroisothiazolinone and 2-Methylisothiazol-3(2H)-one. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Other information

No information available.

SECTION 12: Ecological information

12.1. Toxicity

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 7 of 9

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
2682-20-4	2-Methylisothiazol-3(2H)-one					
	Fish toxicity	NOEC mg/l	2,38	28 d	Pimephales promelas (fathead minnow)	
	Algae toxicity	NOEC mg/l	0,03	3 d	Pseudokirchneriella subcapitata	
	Crustacea toxicity	NOEC mg/l	0,55	21 d	Daphnia magna (Big water flea)	

12.2. Persistence and degradability

The surfactants contained in this mixture comply with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
2682-20-4	2-Methylisothiazol-3(2H)-one			
	OECD 301	<60%	28	
	Not readily biodegradable (according to OECD criteria)			

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation.
Delivery to an approved waste disposal company.

List of Wastes Code - residues/unused products

070299 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; wastes not otherwise specified

List of Wastes Code - contaminated packaging

150102 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); plastic packaging

Contaminated packaging

Non-contaminated packages may be recycled.

SECTION 14: Transport information

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 8 of 9

Land transport (ADR/RID)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No special measures are necessary.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 75

2010/75/EU (VOC): 0 %

Additional information

Regulation (EC) No. 648/2004 [Detergents regulation]

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

Safety Data Sheet

according to Regulation (EC) No 1907/2006



Buz® Defoam

G478

Revision date: 18.01.2024

Page 9 of 9

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Process categories according to ECHA guidance on information requirements and chemical safety assessment, chapter R.12:

PROC 1: Use in closed processes.

PROC 2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC 4: Chemical production where opportunity for exposure arises

PROC 7: Industrial spraying

PROC 8 (Transfer): Dilution of concentrated products, application of drain cleaners, dosage of textile washing agents.

PROC 9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC 10 (Roller application or brushing): Processing without large-scale spraying.

PROC 11 (Spraying outside industrial settings): Processing with large-scale spraying (e. g. high pressure cleaning, foam gun).

PROC 13: Treatment of articles by dipping and pouring

PROC 19 (Hand-mixing with intimate contact): Hand cleaning and disinfection

Relevant H and EUH statements (number and full text)

H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.
EUH208	Contains Methylchloroisothiazolinone and 2-Methylisothiazol-3(2H)-one. May produce an allergic reaction.
EUH210	Safety data sheet available on request.

Further Information

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]: 9 (1)

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)



EVERZIT[®] / EN 12909

Analysis, Characteristics and Standard sizes

- Technical Data Sheet TI 033 -

1. General information

EVERZIT[®] N is an anthracite mined from a depth of about 1,500 m. The resources in the northernmost German coal deposit are sufficient to provide an anthracite of constant excellent quality for many future decades. Especially favourable geological processes formed an anthracite with a particularly special structure. As a purely natural product in its original form, it is used for the filtration of water and for this reason is called **Everzit[®] N**.

2. Fields of application

EVERZIT[®] N in rapid gravity and pressure filters serves to filter water containing suspended solids and turbidity in the fields of drinking-water, process water and wastewater treatment. It is also used in the water purification process for swimming pools.

EVERZIT[®] N promotes

- An improvement in the filtration efficiency
- A decrease in the uncertainty of filter breakthroughs
- A saving of washwater
- An increase in the filtration velocity
- A lengthening of the filter run

3. Advantages

The natural product already possesses the properties which are necessary for an ideal filter medium:

- High resistance to abrasion
- High bulk density
- High backwash velocity without washout loss
- Good flushout also of dirt particles with a higher specific weight

- Optimal separation of the filter layers after back-washing
- Low tendency to clump due to the smooth surface
- No adhesion of precipitated iron, calcium or manganese compounds
- No release of silicic acid or heavy metals into the water
- Fully functional between pH 3 to pH 12
- Higher retention capacity for solids
- Lower pressure loss
- Lower initial filter resistance
- Longer filter-runs
- Higher filtration velocity
- Better filtrate quality
- Lower backwash frequency
- Less space requirement
- Which together have the attractive economic aspect of lower running costs

4. Physical and chemical data

Carbon	approx. 92,0	%
Moisture	approx. 1,0	%
Ash	approx. 3,5	%
Volatile matters	approx. 5,5	%
Acid-solubility (19% hydrochloric acid)	max. 0,18 % according to AWWA B100-01	
Bulk density*	730 kg/m ³	
Density	1,40 – 1,45 g/ccm	
Grain porosity	< 10 %	
Hardness	4 Mohs	
Hardgrove	32 – 34 dH°	
Attrition loss**	0,06 %	

EVERS ANTHRAZITVEREDELUNG

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e-mail: info@evers.de • Internet: www.evers.de



* This figure is an annual average value

** Attrition loss is the portion of particles < 0,5 mm grain size of initially 200 ml filter material, which was moved upside down with 30 Upm in a 300 ml flask for 5 hours

Partical values for the backwash rate

Type	Grain size range	Backwash rate
I	0.8 – 1.6 mm	35 – 40 m/h
II	1.4 – 2.5 mm	55 – 60 m/h
III	2.0 – 4.0 mm	85 – 95 m/h
IV	3.5 – 7.0 mm	130 – 140 m/h

5. Standard grain sizes

Type	Grain size range mm	Effective size d_{10} mm	Uniformity coefficient $U=d_{60}/d_{10}$
S	0,001 – 0,1	-	-
0	0,1 – 1,0	-	-
I	0.8 – 1.6	0.9 – 1.0	≤ 1.4
II	1.4 – 2.5	1.5 – 1.6	≤ 1.4
III	2.0 – 4.0	2.6 – 2.7	≤ 1.4
IV	3.5 – 7.0	< 4.0	≤ 1.5

6. Grain size combinations for the multi-layer filter

for dual – media filters are recommended on the grounds of investigations by several research institutes and experience gained from existing units:

Filter material	Grain grade combinations		
	I	II	III
Everzit® N	0.8 – 1.6 mm	1.4 – 2.5 mm	2.0 – 4.0 mm
Filter sand	0.63 – 1.0 mm	0.71 – 1.25 mm	1.0 – 2.0 mm
Supprot. layers*	1.0 - 2.0 mm	2.0 - 3.15 mm	3.15 - 5.6 mm
Consist. of filter	2.0 - 3.15 mm	3.15 - 5.6 mm	5.6 - 8.0 mm
Sand/gravel	3.15 - 5.6 mm	5.6 - 8.0 mm	8.0 - 12.0 mm

7. Single layer filter

Height of layer in case of

open plants	at least 500 mm
closed plants	at least 300 mm

8. Filter speed

open plants	3 – 15 m/h
closed plants	10 – 30 m/h

9. Backwash techniques of single layer filters

9.1 Washing with air and water

- Backwashing with air

Air speed	60 – 90 m/h
Duration	about 1 – 3 min

Following treatment, a period of about 2 minutes should elapse to allow the air to dissipate from the filter bed before washing water is started. During clear washing, the water content of the filter should be replaced at least once (wash water speed and duration of washing see table “practical values”). A long period of washing is of less importance for the cleaning effect. Better results are obtained by repeating the whole wash programme: lowering – air washing – retention time – water washing as described above.

- Backwashing with air and water (combined)

Air speed	60 – 90 m/h
Duration	about 1 – 3 min

Following 1 – 2 minutes of washing with air only, treatment is continued with air and water in combination.

Water speed	7 – 20 m/h
Duration	about 3 – 5 min

Following this procedure a clear washing with water only is performed (speed of washing see table “practical values”) and if necessary (in case of multi-layer filters) a separated washing.

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9.2 Special points for the washing of multi layer filters

In case of multi layer filters which have a freeboard height which is only adjusted to the bed expansion it is **not allowed** to wash with air and water simultaneously!

When the height of freeboard is 2 m or more (submerging filter), a combined washing with air and water can be performed. In such cases washing has to be performed according to manufacturer's specifications because the optimisation of the washing rate and duration is limited by the submerging volume.

In case of filters used for removing flocs, it can be of advantage to perform a washing with water only before air washing takes place. During washing with water only a great part of the flocs from the upper filter layer are removed. Herewith a distribution of the dirt particles in the filter bed during air washing is avoided.

In the case the filter materials are mixed to a great extent, for example caused by a combined washing with air and water at the end of the washing a re-arrangement of the filter layers by an increase of approx. 15 % wash water speed is reached
(⇒ separated washing).

The height of the freeboard should be achieved according to the washing technique as well as according to filter bed expansion (in accordance with DVGW worksheet W 211 Pos. 3.2.2.1) with a safety extend of at least 300 mm.

Especially in case of biologically assisted filtration processes, a period of preparation or seeding of the filter with prepared material may be necessary. Following such preparations, it may be useful to control the washing conditions (speed of washing, duration of washing etc.) and if necessary to optimise them. In the case of wastewater filtration, the required bed expansion will often be achieved with lower washing speeds than expected with fresh material.

An automated process of the washing programme is desirable. The possibility to make corrections for optimal running at low efforts should be possible.

10. Delivery

The delivery of Everzit® N is done in

- 50 l plastic bags
- 1.2 t big bags (about 1.65 m³)
- as bulk in silo lorries

Subsize filter material which may arise during transport into the filter can be removed by backwashing alone or scraped off after backwashing.

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier:

G. & S. – WA

BAUA-Reg-Nr: N-21776

BFR-Ident-Nr: 30577

Article number: gso200

1.2. Relevant identified uses of the mixture and uses advised against:

Algae, slime and putrefaction inhibitors in water-containing operating materials and operating water, for professional and industrial use.

SL, concentrate miscible with water

Product-type 2: Disinfectants and algacides not intended for direct application to humans or animals

Product-type 4: Food and feed area

Product-type 6: Preservatives for products during storage

Product-type 11: Preservatives for liquid-cooling and processing systems

Product-type 12: Slimicides

Product-type 13: Working or cutting fluid preservatives

1.3. Details of the supplier of the safety data sheet:

Information about the manufacturer/distributor:

G. & S. PHILIPP

Mühlweg 7, D-86943 Thaining

Tel: +49 8194 93109 80

1.3.1. Responsible person: Produktsicherheit
E-mail: SDB@guschem.de

1.4. Emergency telephone number: +49 171 8927687

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the mixture:

Classification according to Regulation (EC) No 1272/2008 (CLP):

Skin corrosion/irritation, Hazard Category 1C – H314

Sensitisation - Skin, hazard category 1A – H317

Serious eye damage/eye irritation, Hazard Category 1 – H318

Hazardous to the aquatic environment – Acute Hazard, Category 1 – H400

Hazardous to the aquatic environment – Chronic Hazard, Category 1 – H410

Hazard statements:

H314 – Causes severe skin burns and eye damage.

H317 – May cause an allergic skin reaction.

H318 – Causes serious eye damage.

H400 – Very toxic to aquatic life.

H410 – Very toxic to aquatic life with long lasting effects.

2.2. Label elements:

G. & S. PHILIPP

Components that define the hazards: Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)



Hazard statements:

H314 – Causes severe skin burns and eye damage.
H317 – May cause an allergic skin reaction.
H410 – Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P273 – Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 – If skin irritation or rash occurs: Get medical advice/ attention.
P391 – Collect spillage.

Note:

Biocide product, observe Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products during disposal/labelling.

2.3. Other hazards:

Contains no nanomaterial.
 The product has no other known specific hazards for human or environment.
 The ingredients of the product do not meet the criteria for PBT or vPvB substances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances:

Not applicable.

3.2. Mixtures:

Description: Aqueous mixture of a reaction mixture consisting of:

Description	CAS number	EC number / ECHA list number	REACH registration number	Conc. (%)	Classification according to Regulation (EC) No 1272/2008 (CLP)		
					Pictogram, signal word code(s)	Hazard class and category code(s)	Hazard statement code(s)
Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)* Index number: 613-167-00-5	55965-84-9	-	-	kb. 2	GHS06 GHS05 GHS09 Danger	Acute Tox. 2 Acute Tox. 2 Acute Tox. 3 Skin Corr. 1C Eye Dam. 1 Skin Sens. 1A Aquatic Acute 1 M-factor=100 Aquatic Chronic 1 M-	H330 H310 H301 H314 H318 H317 H400 H410 EUH071

						factor=100	
--	--	--	--	--	--	------------	--

*: Classification specified by the manufacturer that includes other classification in addition to the classification specified by Regulation (EC) No 1272/2008.

Specific concentration limits:

Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1) (CAS number: 55965-84-9):

Skin Corr. 1C; H314: $C \geq 0,6 \%$

Skin Irrit. 2; H315: $0,06 \% \leq C < 0,6 \%$

Eye Dam. 1; H318: $C \geq 0,6 \%$

Eye Irrit. 2; H319: $0,06 \% \leq C < 0,6 \%$

Skin Sens. 1A; H317: $C \geq 0,0015 \%$

For the full text of hazard statements, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

General information: Remove contaminated clothing immediately.

If health problems occur, seek medical advice.

Self-protection of the first aider.

INGESTION:

Measures:

- Do not induce vomiting.
- Immediately call a physician.
- Have medicinal alcohols ingested.
- Rinse mouth immediately with plenty of water.
- Give the victim plenty of water to drink.

INHALATION:

Measures:

- After inhalation of fire gas, remove victim from danger area and provide plenty of fresh air.
- Call a doctor immediately.

SKIN CONTACT:

Measures:

- Immediately remove any clothing contaminated with the product.
- Remove contaminated shoes and carefully clean or dispose of them.
- Wash off with soap and water as soon as possible and rinse thoroughly.
- Immediate medical treatment is necessary, as untreated burns can lead to hard-to-heal wounds.
- In case of extensive skin exposure, use an emergency shower.

EYE CONTACT:

Measures:

- Immediately rinse thoroughly with plenty of water for at least 15 minutes with the eyelids apart and consult an ophthalmologist.

4.2. Most important symptoms and effects, both acute and delayed:

The following symptoms may occur:

Allergic reactions.

Skin alterations such as itching, redness, blistering may only occur after hours.

Chemical burns of the upper gastrointestinal tract.

4.3. Indication of any immediate medical attention and special treatment needed:

If swallowed, rinse the stomach with activated charcoal.

Treat skin and mucous membranes with antihistamines and corticosteroids.

Flush eyes with physiological saline solution.

SECTION 5: FIREFIGHTING MEASURES

- 5.1. **Extinguishing media:**
5.1.1. **Suitable extinguishing media:**
Water spray, foam, powder, carbon dioxide.
5.1.2. **Unsuitable extinguishing media:**
No unsuitable extinguishing media known.
5.2. **Special hazards arising from the substance or mixture:**
Under certain fire conditions, traces of toxic substances cannot be ruled out, such as: nitrogen oxides (NOX), carbon monoxide (CO), sulphur dioxide (SO₂), hydrogen chloride (HCl). The inhalation of such combustion products can have serious adverse effects on health.
5.3. **Advice for firefighters:**
Wear full protective clothing and self-contained breathing apparatus.
The contaminated extinguishing water should be collected separately, do not discharge it into the sewer system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. **Personal precautions, protective equipment and emergency procedures:**
6.1.1. **For non-emergency personnel:**
Allow only well-trained experts wearing suitable protective clothing to abide in the field of accident.
6.1.2. **For emergency responders:**
Wear personal protective clothing (see Section 8).
Keep unprotected persons away.
When selecting protective equipment, ensure complete and safe protection of skin and mucous membranes.
Impermeable protective clothing, protective neoprene boots, full face protection, nitrile rubber gloves with long cuffs are recommended.
6.2. **Environmental precautions:**
Dispose of the spillage and the resulting waste according to the applicable environmental regulations. Do not allow the product and the resulting waste to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.
6.3. **Methods and material for containment and cleaning up:**
Collect larger quantities in containers.
Sprinkle residues with suitable binder, mix well and sweep up avoiding dust formation.
Dispose of contaminated material as waste according to Section 13.
6.4. **Reference to other sections:**
For further and detailed information see Sections 7, 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1. **Precautions for safe handling:**
Observe conventional hygiene precautions.
Technical measures:
Do not leave containers open.
When designing the work processes, the model solutions in the corresponding protection guides must be taken into account.
Precautions against fire and explosion:
No special measures required.
7.2. **Conditions for safe storage, including any incompatibilities:**
Technical measures and storage condition:
Store only in the original container in accordance with official regulations.
Do not store together with food.
Keep container tightly closed.
Protect from heat and direct sunlight.
Storage temperature: 10-25°C.
Storage class: 8B (Non-combustible corrosive substances, TRGS 500) (data given by the manufacturer).
Incompatible materials: See Section 10.5
Packaging material: No special prescriptions.
7.3. **Specific end use(s):**
No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Occupational exposure limit values (Commission Directive (EC) No 2000/39 of 8 June 2000):

The components of the mixture are not regulated with exposure limit value.

DNEL values		Oral exposure		Dermal exposure		Inhalative exposure	
		Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)
Consumer	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data
Worker	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data

PNEC values		
Compartment	Value	Note(s)
Freshwater	no data	no notes
Marine water	no data	no notes
Freshwater sediment	no data	no notes
Marine water sediment	no data	no notes
Sewage Treatment Plant (STP)	no data	no notes
Intermittent release	no data	no notes
Secondary poisoning	no data	no notes
Soil	no data	no notes

8.2. Exposure controls:

In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.

8.2.1. Appropriate engineering controls:

In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin.

8.2.2. Individual protection measures, such as personal protective equipment:

Contact with eyes and skin should be avoided.

Preventive skin protection with skin protection ointment.

Ensure thorough skin cleansing and skin care after work.

Keep product away from food.

1. **Eye/face protection:** Use appropriate tight-fitting protective glasses or face protection (EN 166).

2. **Skin protection:**

a. **Hand protection:** Use appropriate protective gloves (EN 374, with CE marking).

Check protective gloves for damage (tears, holes, cuts) before each use. Do not wear protective gloves longer than necessary. After using gloves, use skin cleansing and skin care products. Glove material: Nitrile rubber (Nitrillatex). Layer thickness: 0.4 mm. Penetration time (min.): 480 min. Permeation: Level 6.

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Attention! The daily duration of use of a chemical protective glove can be significantly shorter than the permeation time determined according to EN 374 due to the special conditions at the workplace (mechanical impact, temperature).

b. **Other:** Wear rubber shoes and rubber apron.

3. **Respiratory protection:** When the occupational exposure limit is exceeded, use appropriate respiratory protective device.

Combination filter "AP/2" against organic vapours with boiling point >65 °C and against solid and liquid particles of harmful substances.

4. **Thermal hazards:** No thermal hazards known.

8.2.3. Environmental exposure controls:

See Sections 6 and 7.

The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions, an expert's advice is necessary before deciding upon further protective measures.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter	Value / Test method / Remarks
1. Appearance:	colourless to yellowish clear liquid
2. Odour:	mildly soapy
3. Odour threshold:	no data*
4. pH:	3-4 / 1 % in water / 20 °C
5. Melting point/freezing point:	no data*
6. Initial boiling point and boiling range:	ca. 100 °C
7. Flash point:	not applicable
8. Evaporation rate:	no data*
9. Flammability (solid, gas):	no data*
10. Upper/lower flammability or explosive limits:	no data*
11. Vapour pressure:	23 mbar (H ₂ O) / 20 °C
12. Vapour density:	no data*
13. Relative density:	no data*
14. Solubility(ies):	miscible with water in any proportion
15. Partition coefficient: n-octanol/water:	Log KW – 0.71- + 0.75 / CIT/MIT
16. Auto-ignition temperature:	The product is not self-igniting.
17. Decomposition temperature:	no data*
18. Viscosity:	no data*
19. Explosive properties:	The product is not explosive.
20. Oxidizing properties:	no data*

9.2. Other information:

Density at 20 °C: 1.017-1.037 g/ml

VOC (CH / EU): 0,00%; 0,00 g/l

*: The manufacturer did not carry out any tests on this parameter for the product or the results of the tests are not available at the time of publication of the data sheet.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

So far, no hazards can be identified that would result from reactivity of the mixture.

10.2. Chemical stability:

Before application, the product should not be diluted or mixed with other chemicals in order to avoid negative influences on the active substances.

10.3. Possibility of hazardous reactions:

No hazardous reactions known.

10.4. Conditions to avoid:

No conditions to avoid known.

10.5. Incompatible materials:

Alkalis (bases), reducing agents, strong oxidising agents, nucleophiles.

10.6. Hazardous decomposition products:

No hazardous decomposition products when stored and used properly.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity: Based on available data, the classification criteria are not met.

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/irritation: Causes serious eye damage.

Respiratory or skin sensitisation: May cause an allergic skin reaction.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure: Based on available data, the classification criteria are not met.

STOT-repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

11.1.1. Summaries of the information derived from the test conducted:

No data available.

11.1.2. Relevant toxicological properties:

Acute toxicity:

Information about the components:

Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1) (CAS number: 55965-84-9):

LD₅₀ (oral, rat): 4467 mg/kg (Literature value)

LD₅₀ (dermal, rat): >5000 mg/kg

Skin corrosion/irritation:

Corrosive effect on skin and mucous membranes.

Serious eye damage/irritation:

Causes serious eye damage.

Respiratory or skin sensitisation:

May cause sensitisation by skin contact.

11.1.3. Information on likely routes of exposure:

Ingestion, inhalation, skin contact, eye contact.

11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

11.1.6. Interactive effects:

No data available.

11.1.7. Absence of specific data:

No information.

11.1.8. Other information:

No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

Short-term (acute) aquatic toxicity hazard: Very toxic to aquatic life.

Long-term (chronic) aquatic toxicity: Very toxic to aquatic life with long lasting effects.

Fish toxicity:

EC₅₀ (rainbow trout (*Oncorhynchus mykiss*), 96 h): 14.8 mg/l

Daphnia toxicity:

EC₅₀ (48 h): 8 mg/l

Algae toxicity:

EC₅₀ (green alga (*Selenastrum capricornutum*), 72 h): 1.67 mg/l

12.2. Persistence and degradability:

The product ingredients are easily eliminated from waste water.

Degree of biodegradability: > 60 %.

The product ingredients are rapidly (easily) biodegradable.

12.3. Bioaccumulative potential:

Due to the partition coefficient n-octanol/water, accumulation in organisms is not expected. Log KW - 0.71 - + 0.75; CIT/MIT.

12.4. Mobility in soil:

No data available.

12.5. Results of PBT and vPvB assessment:

The ingredients of the product do not meet the criteria for PBT or vPvB substances.

12.6. Other adverse effects:

Water hazard class (WGK, German regulation, self-classification): 2 - hazardous for water.

Chemical oxygen demand (COD): approx. 16 mg O₂/g.

AOX advice: May affect the AOX value of waste water. The active substance is not persistent. It is rapidly degraded by splitting the chlorine atoms.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Disposal according to the local regulations.

13.1.1. Information regarding the disposal of the product:

Hazardous waste according to the Waste Catalogue Ordinance (AVV).

If recycling is not possible, waste must be disposed of in accordance with local regulations.

Must not be disposed of together with household waste.

Do not allow to enter drains.

Consult the waste disposal company for the exact waste code.

List of Waste Code:

16 03 05* organic wastes containing hazardous substances

*: Hazardous waste.

13.1.2. Information regarding the disposal of the packaging:

Dispose of in accordance with applicable regulations.

The contaminated packaging must be fully emptied. The emptied packaging can only be sent to recycling after proper cleaning.

Carefully cleaned packaging can be reused.

Recommended cleaning agent: Water.

13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:

No data available.

13.1.4. Sewage disposal:

No data available.

13.1.5. Special precautions for any recommended waste treatment:

No data available.

SECTION 14: TRANSPORT INFORMATION

14.1. UN Number:

UN 3265

14.2. UN proper shipping name:

ADR/RID:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(reaction mass of containing 5-Chloro-2-methyl-2H-isothiazol-3-one and 2-Methyl-2H- isothiazol-3-one (3:1)), ENVIRONMENTALLY HAZARDOUS

IMDG / IATA:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(reaction mass of containing 5-Chloro-2-methyl-2H-isothiazol-3-one and 2-Methyl-2H- isothiazol-3-one (3:1)), MARINE POLLUTANT

14.3. Transport hazard class(es):

8

Labels: 8

14.4. Packing group:

II

14.5. Environmental hazards:

Environmentally hazardous: Yes.

Symbol (fish and tree).

Marine pollutant: Yes.

14.6. Special precautions for user:

Attention: Corrosive substances

Kemmler number: 80

Tunnel restriction code: E

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:

The delivery takes place exclusively in packaging that is approved and suitable under traffic law.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency,

amending Directive (EC) No 1999/45 and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive (EEC) No 76/769 and Commission Directives (EEC) No 91/155, (EEC) No 93/67, (EC) No 93/105 and (EC) No 2000/21

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives (EEC) No 67/548 and (EC) No 1999/45, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) No 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

REGULATION (EU) No 528/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 May 2012 concerning the making available on the market and use of biocidal products

15.2. **Chemical safety assessment:** Chemical safety assessment has not been carried out.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet: No information.

Literature references / data sources:

Safety data sheet issued by the manufacturer (30. 08. 2018, version 3.1, German)

Methods used for the classification according to Regulation (EC) No 1272/2008:

Classification	Method
Skin corrosion/irritation, Hazard Category 1C – H314	Based on calculation method
Sensitisation - Skin, hazard category 1A – H317	Based on calculation method
Serious eye damage/eye irritation, Hazard Category 1 – H318	Based on calculation method
Hazardous to the aquatic environment – Acute Hazard, Category 1 – H400	Based on calculation method
Hazardous to the aquatic environment – Chronic Hazard, Category 1 – H410	Based on calculation method

Relevant hazard statements (code and full text) of Sections 2 and 3:

H301 – Toxic if swallowed.
H310 – Fatal in contact with skin.
H314 – Causes severe skin burns and eye damage.
H315 – Causes skin irritation.
H317 – May cause an allergic skin reaction.
H318 – Causes serious eye damage.
H319 – Causes serious eye irritation.
H330 – Fatal if inhaled.
H400 – Very toxic to aquatic life.
H410 – Very toxic to aquatic life with long lasting effects.
EUH 071 – Corrosive to the respiratory tract.

Training advice: No training is required for activities involving this hazardous substance.

Full text of the abbreviations in the safety data sheet:

ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE: Acute Toxicity Estimate.
AOX: Adsorbable organic halides.
BCF: Bioconcentration factor.
BOD: Biological Oxygen Demand.
CAS number: Chemical Abstract Service number.
CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
CMR effects: Carcinogenic, mutagenic, reprotoxic effects.
COD: Chemical Oxygen Demand.
CSA: Chemical Safety Assessment.
CSR: Chemical Safety Report.
DNEL: Derived-No-Effect-Level.
ECHA: European Chemical Agency.

EC: European Community.

EC number: EINECS and ELINCS numbers (see also EINECS and ELINCS).

EEC: European Economic Community.

EEA: European Economic Area (EU + Iceland, Liechtenstein and Norway).

EINECS: European Inventory of Existing Commercial Chemical Substances.

ELINCS: European List of Notified Chemical Substances.

EN: European Norm.

EU: European Union.

EWG: European Waste Catalogue (replaced by LoW – see below).

GHS: Globally Harmonized System of Classification and Labelling of Chemicals.

IATA: International Air Transport Association.

ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.

IMDG: International Maritime Dangerous Goods.

IMSBC: International Maritime Solid Bulk Cargoes.

IUCLID: International Uniform Chemical Information Database.

IUPAC: International Union of Pure and Applied Chemistry.

Kow: n-Octanol - Water Partition Coefficient.

LC₅₀: Lethal concentration resulting in 50 % mortality.

LD₅₀: Lethal dose resulting in 50 % mortality (median lethal dose).

LoW: List of Waste.

LOEC: Lowest Observed Effect Concentration.

LOEL: Lowest Observed Effect Level.

NOEC: No Observed Effect Concentration.

NOEL: No Observed Effect Level.

NOAEC: No Observed Adverse Effect Concentration.

NOAEL: No Observed Adverse Effect Level.

OECD: Organization for Economic Cooperation and Development.

OSHA: Occupational Safety and Health Administration.

PBT: Persistent, Bioaccumulative and Toxic.

PNEC: Predicted No Effect Concentration.

QSAR: Quantitative Structure Activity Relationship.

REACH: Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.

SCBA: Self Contained Breathing Apparatus.

SDS: Safety Data Sheet.

STOT: Specific Target Organ Toxicity.

SVHC: Substances of Very High Concern.

UN: United Nations.

UVCB: Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials.

VOC: Volatile Organic Compound.

vPvB: very Persistent and very Bioaccumulative.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations.

The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information.

The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required.

Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product.

It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.

Safety data sheet was prepared by:
MSDS-Europe
International branch of ToxInfo Kft.

Professional help regarding the explanation of
the safety data sheet:
+36 70 335 8480; info@msds-europe.com



Safety data sheet according to 1907/2006/EC, Article 31

Supersedes Date 2022-12-01

Revision Date: 2023-10-09

Revision Number: 11

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name KLC EXFOAM 7

Unique Formula Identifier (UFI) in progress

Pure substance/mixture Mixture

Relevant identified uses Anti-foaming agent (defoamer)
Uses advised against Consumer use

Manufacturer

Supplier KMU LOFT Cleanwater SE
-Betriebsstätte Hausen-
Krummattstraße 4
79688 Hausen im Wiesental
Tel.: +49 (0) 7622 / 66696-0
Fax: +49 (0) 7622 / 66696-20

Qualified person as per Regulation (EC) No 1907/2006: sdb@kmu-loft.de

Emergency Telephone

Emergency telephone Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0) 6132-84463

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin sensitization	Category 1 - (H317)
---------------------------	---------------------

2.2. Label elements

Contains 2-Methyl-3-isothiazolone



Signal word
Warning

Hazard statements

H317 - May cause an allergic skin reaction

Precautionary Statements - EU (§28, 1272/2008)

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P280 - Wear protective gloves

P321 - Specific treatment (see first aid on this label)

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

P362 + P364 - Take off contaminated clothing and wash it before reuse

P501 - Dispose of contents/ container to an approved waste disposal plant

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures**Chemical nature**

Aqueous dispersion.

Hazardous Components

Chemical name	CAS No	Weight-%	EC No (EU Index No)	REACH registration number	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
2-Methyl-3-isothiazolone	2682-20-4	<=0.015	220-239-6	-	Acute Tox. 2 (H330) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Skin Corr. 1B (H314) Skin Sen. 1A (H317) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) (M=10) Aquatic Chronic 1 (H410) (M=1)	Skin Sens. 1 :: C>=0.0015%	10	1

Full text of H- and EUH-phrases: see section 16**Acute Toxicity Estimate**

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATE_{mix}) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
2-Methyl-3-isothiazolone 2682-20-4	232 120	200	No data available	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
Ingestion	Rinse mouth.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	No information available.
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
--------------------	------------------------

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	No information available.
--	---------------------------

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
--	--

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.
----------------------------------	---

6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.
------------------------------------	--

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Take off contaminated clothing and wash before reuse. Do not get in eyes, on skin, or on clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep container tightly closed in a dry and well-ventilated place.
---------------------------	---

7.3. Specific end use(s)

Risk Management Methods (RMM)	The information required is contained in this Safety Data Sheet.
--------------------------------------	--

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure Limits**

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
2-Methyl-3-isothiazolone	-	TWA: 0.05 mg/m ³ Sh+	-	-	-
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
2-Methyl-3-isothiazolone 2682-20-4	-	-	TWA: 0.2 mg/m ³ Peak: 0.4 mg/m ³ skin sensitizer	-	-
Chemical name	Sweden		Switzerland	United Kingdom	
2-Methyl-3-isothiazolone	-		S+	-	

2682-20-4		TWA: 0.2 mg/m ³ STEL: 0.4 mg/m ³	
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Biological occupational exposure limits

Derived No Effect Level (DNEL)	No information available.
Predicted No Effect Concentration (PNEC)	No information available.

8.2. Exposure controls

Personal protective equipment

Eye/face protection	No special protective equipment required.
Skin and body protection	No special protective equipment required.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid	
Appearance	White	
Odor	mild.	
Property	Values	Remarks • Method
Melting point	0 °C	(CAS 7732-18-5)
Boiling point	100 °C	(CAS 7732-18-5)
Flammability (solid, gas)	not ignitable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Flash Point	> 100 °C	(DIN EN ISO 2719)
Autoignition temperature	Not available for the mixtures or its components	Not available for the mixture or its components
Decomposition temperature	Not applicable	
pH	7.1	(2% in DI) 1% soln.
pH (as aqueous solution)	No data available	
Kinematic viscosity	4253 mm ² /s	
Dynamic viscosity	~4,210 mPa s	ISO 2555
Water solubility	No data available	
Solubility in other solvents	Dispersible	
Partition coefficient: n-octanol/water	Not applicable	Mixture
Vapor Pressure	No data available	
Relative density	0.99 g/cm ³	ASTM D 1475
Vapor density	Not measurable	not measurable
Particle characteristics		

Particle Size	Not applicable
Particle Size Distribution	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks.

10.5. Incompatible materials

Incompatible materials Strong oxidizing agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon oxides. Formaldehyde. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information	Information given is based on data on the components and the toxicology of similar products.
Eyes	Contact with eyes may cause irritation. Avoid contact with eyes.
Skin	May be harmful in contact with skin. May cause sensitization by skin contact. Avoid contact with skin.
Inhalation	Health injuries are not known or expected under normal use.
Ingestion	Health injuries are not known or expected under normal use.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 1,310,308.30 mg/kg
 ATEmix (dermal) 273,035.50 mg/kg

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Organosiloxane polymer	> 24 g/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

11.2. Information on other hazards**11.2.1. Endocrine disrupting properties**

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information**12.1. Toxicity**

Ecotoxicity The environmental impact of this product has not been fully investigated.

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment.

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
2-Methyl-3-isothiazolone	-0.26

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

Chemical name	PBT and vPvB assessment
2-Methyl-3-isothiazolone	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

Waste codes / waste designations according to EWC / AVV 16 03 06.

Other information No information available.

SECTION 14: Transport information

ADR/RID Not regulated
14.2

IMDG Not regulated

IATA Not regulated

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**International Inventories**

US TSCA Active	Complies
Australia (AIIC)	Complies
Canada (DSL)	Complies
China (IECSC)	Complies
Europe (EINECS/ELINCS/NLP)	Complies
Japan (ENCS)	Complies
South Korea (KECL)	Complies
New Zealand (NZIoC)	Complies
Philippines (PICCS)	Not listed
Taiwan (TSCI)	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals (AIIC)
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
TSCI - Inventory - Taiwan - Taiwan Chemical Substance Inventory (TSCI)

National regulations**France****Occupational Illnesses (R-463-3, France)****Germany** Water endangering class = 1 (self classification)**Netherlands****European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorization per REACH Annex XIV
2-Methyl-3-isothiazolone - 2682-20-4	75.	-

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Biocidal Products Regulation (EU) No 528/2012 (BPR)

Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
2-Methyl-3-isothiazolone - 2682-20-4	Product-type 11: Preservatives for liquid-cooling and processing systems Product-type 12: Slimicides Product-type 13: Working or cutting fluid preservatives Product-type 6: Preservatives for products during storage

15.2. Chemical safety assessment**Chemical Safety Report**

No information available

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H301 - Toxic if swallowed

H311 - Toxic in contact with skin

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorization:

PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals

vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTIONTWA TWA (time-weighted average)
Ceiling Maximum limit valueSTEL
*STEL (Short Term Exposure Limit)
Skin designation

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Issue Date: 2017-05-15
Revision Date: 2023-10-09
Reason for revision SDS sections updated, 1, 7, 10.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Article No.: 605050 aquanol 02
Print date: 09.11.2022 Revision date: 09.11.2022 EN
Version: 4.3 Issue date: 28.09.2022 Page 1 / 9

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Article No. (manufacturer/supplier): 605050
Trade name/designation aquanol 02

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Preservative
Industrial use; Professional use

1.3. Details of the supplier of the safety data sheet

supplier (manufacturer/importer/downstream user/distributor)

aqua plus Wasser- und Recyclingsysteme GmbH
Am Barnberg 14 Telephone: +49 (0) 7173 - 714418 0
D-73560 Böbingen an der Rems Telefax: +49 (0) 7173 - 714418 15

Department responsible for information:

E-mail info@aqua-plus.de

1.4. Emergency telephone number

Emergency telephone number +49 (0) 7173 - 714418 0

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Met. Corr. 1 / H290	Corrosive to metals	May be corrosive to metals.
Skin Corr. 1B / H314	Skin corrosion/irritation	Causes severe skin burns and eye damage.
Eye Dam. 1 / H318	Serious eye damage/eye irritation	Causes serious eye damage.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Aquatic Acute 1 / H400	Hazardous to the aquatic environment	Very toxic to aquatic organisms.
Aquatic Chronic 2 / H411	Hazardous to the aquatic environment	Toxic to aquatic life with long lasting effects.

2.2. Label elements

The product is classified and labelled according to EC directives or corresponding national laws.

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Danger

Hazard statements

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe vapour.
P273 Avoid release to the environment.
P280 Wear protective gloves and eye/face protection.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.

Hazard components for labelling

Article No.: 605050 aquanol 02
Print date: 09.11.2022 Revision date: 09.11.2022
Version: 4.3 Issue date: 28.09.2022 EN
Page 2 / 9

potassium hydroxide
1,2-benzisothiazol-3(2H)-one
N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

Supplemental hazard information

not applicable

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Description

Hazardous ingredients

Classification according to Regulation (EC) No 1272/2008 [CLP]

EC No. CAS No. Index No.	REACH No. Designation classification: // Remark	weight-%
220-120-9 2634-33-5 613-088-00-6	1,2-benzisothiazol-3(2H)-one Acute Tox. 4 H302 / Skin Irrit. 2 H315 / Eye Dam. 1 H318 / Skin Sens. 1 H317 / Aquatic Acute 1 H400 / Aquatic Chronic 2 H411 / EUH071 Specific concentration limit (SCL): Skin Sens. 1 H317 >= 0,05	4 - 5,5
219-145-8 2372-82-9	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine Acute Tox. 3 H301 / Skin Corr. 1A H314 / Eye Dam. 1 H318 / STOT RE 2 H373 / Aquatic Acute 1 H400 (M = 10) / Aquatic Chronic 1 H410 (M = 1)	2 - 3,5
215-181-3 1310-58-3 019-002-00-8	potassium hydroxide Acute Tox. 4 H302 / Skin Corr. 1A H314 / Eye Dam. 1 H318 / Met. Corr. 1 H290 Specific concentration limit (SCL): Skin Corr. 1A H314 >= 5 / Skin Corr. 1B H314 >= 2 / Skin Irrit. 2 H315 >= 0,5 / Eye Irrit. 2 H319 >= 0,5	0,5 - 1,5
223-296-5 3811-73-2	2-Pyridinethiol-1-oxide sodium salt Acute Tox. 4 H302 / Acute Tox. 3 H311 / Acute Tox. 4 H332 / Skin Irrit. 2 H315 / Eye Irrit. 2 H319 / Aquatic Acute 1 H400 (M = 100) / Aquatic Chronic 1 H410 (M = 10)	0,5 - 1,5

Additional information

Full text of classification: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners. Consult a physician.

After eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor.

Following ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Seek medical advice immediately.

4.2. Most important symptoms and effects, both acute and delayed

Article No.:	605050	aquanol 02	
Print date:	09.11.2022	Revision date:	09.11.2022
Version:	4.3	Issue date:	28.09.2022
		EN	
		Page 3 / 9	

In all cases of doubt, or when symptoms persist, seek medical advice.

4.3. Indication of any immediate medical attention and special treatment needed

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

Unsuitable extinguishing media

strong water jet

5.2. Special hazards arising from the substance or mixture

Do not breathe gas/fumes/vapour/spray.

5.3. Advice for firefighters

Provide a conveniently located respiratory protective device.

Additional information

Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ventilate affected area. Do not breathe vapours.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

6.3. Methods and material for containment and cleaning up

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).

6.4. Reference to other sections

Observe protective provisions (see section 7 and 8).

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advices on safe handling

Use only with sufficient ventilation. Refer to chapter 8. : Exposure controls / Personal protection

Further information

Respiratory protection necessary at: aerosol or mist formation

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep/Store only in original container.

Requirements for storage rooms and vessels

Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSiVO).

Further information on storage conditions

Take care of instructions on label. Protect from heat and direct sunlight. Protect from frost.

7.3. Specific end use(s)

No measures required.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values

potassium hydroxide

Index No. 019-002-00-8 / EC No. 215-181-3 / CAS No. 1310-58-3

STEL: 2 mg/m³

Article No.: 605050
Print date: 09.11.2022
Version: 4.3

aquanol 02
Revision date: 09.11.2022
Issue date: 28.09.2022

EN
Page 4 / 9

Additional information

TWA : Long-term occupational exposure limit value
STEL : short-term occupational exposure limit value
Ceiling : peak limitation

DNEL:

potassium hydroxide
Index No. 019-002-00-8 / EC No. 215-181-3 / CAS No. 1310-58-3
DNEL long-term inhalative (local), Workers: 1 mg/m³
DNEL long-term inhalative (local), Consumer: 1 mg/m³

8.2. Exposure controls

Personal protection equipment

Respiratory protection

Respiratory protection necessary at: exceeding exposure limit values. Use only respiratory protection equipment with CE-symbol including four digit test number. Combination filtering device Filter type: ABEK

Hand protection

Wear protective gloves. Recommended glove articles according EN ISO 374. Recommendation for protection against the commonly occurring ingredients in the products: For short-term contact (e.g. splash guard): Suitable material: Nitriles, Butyl caoutchouc (butyl rubber), material thickness: $\geq 0,4$ mm, Penetration time of glove material depending on intensity and duration of exposure to skin: ≥ 480 min. The exact break through time can be found out by the manufacturer of the protective gloves and has to be observed. The protective gloves should always be checked for their suitability for specific workplaces (e.g. mechanical resistance, product compatibility). Follow the glove manufacturer's instructions and information on how to use, store, care for and replace gloves. The protective gloves should be replaced immediately if they are damaged or the first signs of wear and tear.

Eye/face protection

Wear eye glasses with side protection according to EN 166.

Body protection

Suitable protective clothing: Protective clothing. Type 6 DIN EN 13034

Protective measures

Avoid contact with eyes and skin.

Environmental exposure controls

Do not allow to enter into surface water or drains. See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

*

Physical state:	Liquid
Appearance:	Liquid
Colour:	yellow
Odour:	characteristic
Odour threshold:	not applicable
Melting point/freezing point	not determined
Initial boiling point and boiling range:	100 °C
Flammability:	Combustible liquid.
Lower and upper explosion limit:	
Lower explosion limit:	not determined
Upper explosion limit:	not determined
Flash point:	> 100 °C Auto-
ignition temperature:	288 °C
Decomposition temperature:	not determined
pH at 20 °C:	9 / 0,2 weight-%
Viscosity at °C:	liquid
Solubility(ies):	

Article No.: 605050 aquanol 02
Print date: 09.11.2022 Revision date: 09.11.2022
Version: 4.3 Issue date: 28.09.2022

EN
Page 5 / 9

Water solubility at 20 °C: 951
Partition coefficient: n-octanol/water: see section 12
Vapour pressure at 20 °C: not determined
Density and/or relative density:
Density at 20 °C: 1,029 g/cm³
Method: Ph. Eur. 2.2.5
Relative vapour density: not determined
particle characteristics: not applicable

9.2. **Other information**

No further relevant information available.

SECTION 10: Stability and reactivity

10.1. **Reactivity**

No information available.

10.2. **Chemical stability**

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

10.3. **Possibility of hazardous reactions**

No known hazardous reactions.

10.4. **Conditions to avoid**

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7. Hazardous decomposition byproducts may form with exposure to high temperatures.

10.5. **Incompatible materials**

Reducing agent, Oxidising agent.

10.6. **Hazardous decomposition products**

Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: Nitrogen oxides (NO_x) Carbon monoxide (CO) Sulfur dioxide, Hydrogen chloride (HCl)

SECTION 11: Toxicological information

11.1. **Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute toxicity

1,2-benzisothiazol-3(2H)-one

oral, LD50, Rat: 454 mg/kg

2-Pyridinethiol-1-oxide sodium salt

oral, LD50, Rat: 1208 mg/kg

dermal, LD50, Rabbit: 720 mg/kg

inhalative (vapours), LC50, Rat (4 h)

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

oral, LD50, Rat: 243,6 mg/kg

Method: OECD 401

potassium hydroxide

oral, LD50, Rat: < 333 mg/kg

Skin corrosion/irritation; Serious eye damage/eye irritation

Corrosive

Causes severe skin burns and eye damage.

potassium hydroxide

Skin (4 h)

eyes

Respiratory or skin sensitisation

sensitising

May cause an allergic skin reaction.

Article No.: 605050 aquanol 02
Print date: 09.11.2022 Revision date: 09.11.2022
Version: 4.3 Issue date: 28.09.2022

EN
Page 6 / 9

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Based on available data, the classification criteria are not met.

STOT-single exposure; STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Practical experience/human evidence

Overall assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

11.2. Information on other hazards

Endocrine disrupting properties

No information available.

SECTION 12: Ecological information

Classification according to Regulation (EC) No 1272/2008 [CLP]

Do not allow to enter into surface water or drains.

12.1. Toxicity

Very toxic to aquatic organisms.

1,2-benzisothiazol-3(2H)-one

Fish toxicity, LC50, Oncorhynchus mykiss (Rainbow trout): 2,15 mg/L (96 h)

Daphnia toxicity, EC50, Daphnia magna (Big water flea): 2,9 mg/L (48 h)

2-Pyridinethiol-1-oxide sodium salt

Fish toxicity, LC50, Oncorhynchus mykiss (Rainbow trout): 0,0066 mg/L (96 h)

Daphnia toxicity, EC50, Daphnia magna: 0,022 mg/L (48 h)

Algae toxicity, ErC50, Selenastrum capricornutum: 0,46 mg/L

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

Fish toxicity, LC50, Oncorhynchus mykiss (Rainbow trout): 0,68 mg/L (96 h)

Method: OECD 203

Daphnia toxicity, EC50, Daphnia magna (Big water flea): 0,073 mg/L (48 h)

Algae toxicity, ErC50, Pseudokirchneriella subcapitata: 0,054 mg/L (96 h)

Long-term Ecotoxicity

Toxic to aquatic life with long lasting effects.

1,2-benzisothiazol-3(2H)-one

Fish toxicity, LC50 (96 h)

Algae toxicity, ErC50 (72 h)

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

Fish toxicity, LC50, Lepomis macrochirus (Bluegill): 0,45 mg/L (96 h)

Algae toxicity, ErC50, Desmodesmus subspicatus.: 0,012 mg/L (72 h)

Daphnia toxicity, NOEC, Daphnia magna (Big water flea): 0,024 mg/L (21 day(s))

Algae toxicity, NOEC, Desmodesmus subspicatus.: 0,0069 mg/L (72 hour(s))

12.2. Persistence and degradability

Toxicological data are not available.

12.3. Bioaccumulative potential

1,2-benzisothiazol-3(2H)-one

Partition coefficient: n-octanol/water: 0,7

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine

Partition coefficient: n-octanol/water: 0,34

Bioconcentration factor (BCF)

1,2-benzisothiazol-3(2H)-one

Bioconcentration factor (BCF): 6,95

12.4. Mobility in soil

Toxicological data are not available.

12.5. Results of PBT and vPvB assessment

*

Article No.:	605050	aquanol 02	
Print date:	09.11.2022	Revision date:	09.11.2022
Version:	4.3	Issue date:	28.09.2022
			EN
			Page 7 / 9

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Appropriate disposal / Product

Recommendation

Do not allow to enter into surface water or drains. This material and its container must be disposed of in a safe way.

List of proposed waste codes/waste designations in accordance with EWC

160305* organic wastes containing hazardous substances

*Hazardous waste according to Directive 2008/98/EC (waste framework directive).

Appropriate disposal / Package

Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

SECTION 14: Transport information

14.1. UN number or ID number

UN 1719

14.2. UN proper shipping name

Land transport (ADR/RID):

Caustic alkali liquid, n.o.s.
(potassium hydroxid, (N,N-Bis (3-aminopropyl) dodecylamine))

Sea transport (IMDG):

CAUSTIC ALKALI LIQUID, N.O.S.
(potassium hydroxid, (N,N-Bis (3-aminopropyl) dodecylamine),
pyridine-2-thiol 1-oxide, natrium salt)

Air transport (ICAO-TI / IATA-DGR):

Caustic alkali liquid, n.o.s.
(potassium hydroxid, (N,N-Bis (3-aminopropyl) dodecylamine))

14.3. Transport hazard class(es)

8

14.4. Packing group

II

14.5. Environmental hazards

Land transport (ADR/RID)

ENVIRONMENTALLY HAZARDOUS

Marine pollutant

p / pyridine-2-thiol 1-oxide, natrium salt

14.6. Special precautions for user

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.

Advices on safe handling: see parts 6 - 8

Further information

Land transport (ADR/RID)

Tunnel restriction code

E

Sea transport (IMDG)

EmS-No.

F-A, S-B

in packages <= 5 litres

not restricted 2.10.2.7

14.7. Maritime transport in bulk according to IMO instruments

No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Restrictions of occupation:

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Article No.: 605050 aquanol 02
Print date: 09.11.2022 Revision date: 09.11.2022
Version: 4.3 Issue date: 28.09.2022
EN
Page 8 / 9

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Regulation (EU) No. 528/2012 on biocides

biocidal product

biocide, active substance

1,2-benzisothiazol-3(2H)-one	47,6 g/kg
2-Pyridinethiol-1-oxide sodium salt	10 g/kg
N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine	30 g/kg
Input	0.5-2.0 g/kg

Authorization number for biocidal products:

PT6

Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive]

VOC-value (in g/L): 0,0

National regulations

15.2. Chemical Safety Assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

EC No. CAS No.	Designation	REACH No.
215-181-3 1310-58-3	potassium hydroxide	01-2119487136-33

SECTION 16: Other information

Full text of classification in section 3:

Acute Tox. 4 / H302	Acute toxicity (oral)	Harmful if swallowed.
Skin Irrit. 2 / H315	Skin corrosion/irritation	Causes skin irritation.
Eye Dam. 1 / H318	Serious eye damage/eye irritation	Causes serious eye damage.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Aquatic Acute 1 / H400	Hazardous to the aquatic environment	Very toxic to aquatic organisms.
Aquatic Chronic 2 / H411	Hazardous to the aquatic environment	Toxic to aquatic life with long lasting effects.
Acute Tox. 3 / H301	Acute toxicity (oral)	Toxic if swallowed.
Skin Corr. 1A / H314	Skin corrosion/irritation	Causes severe skin burns and eye damage.
STOT RE 2 / H373	STOT-repeated exposure	May cause damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
Aquatic Chronic 1 / H410	Hazardous to the aquatic environment	Very toxic to aquatic life with long lasting effects.
Met. Corr. 1 / H290	Corrosive to metals	May be corrosive to metals.
Acute Tox. 3 / H311	Acute toxicity (dermal)	Toxic in contact with skin.
Acute Tox. 4 / H332	Acute toxicity (inhalative)	Harmful if inhaled.
Eye Irrit. 2 / H319	Serious eye damage/eye irritation	Causes serious eye irritation.

Classification procedure

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Met. Corr. 1	Corrosive to metals	On basis of test data.
Skin Corr. 1B	Skin corrosion/irritation	Calculation method.
Eye Dam. 1	Serious eye damage/eye irritation	Calculation method.
Skin Sens. 1	Respiratory or skin sensitisation	Calculation method.
Aquatic Acute 1	Hazardous to the aquatic environment	Calculation method.
Aquatic Chronic 2	Hazardous to the aquatic environment	Calculation method.

Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL	Occupational Exposure Limit Value
BLV	Biological Limit Value
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, Mutagenic and Reprotoxic
DIN	German Institute for Standardization / German industrial standard
DNEL	Derived No-Effect Level
FAKV	European Waste Catalogue Directive

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2020/878

Article No.:	605050	aquanol 02	
Print date:	09.11.2022	Revision date: 09.11.2022	EN
Version:	4.3	Issue date: 28.09.2022	Page 9 / 9

EC	Effective Concentration
EC	European Community
EN	European Standard
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
ISO	International Organization for Standardization
LC	Lethal Concentration
LD	Lethal Dose
MARPOL	Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

Further information

Classification according to Regulation (EC) No 1272/2008 [CLP]

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in section 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.

* Data changed compared with the previous version

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **aquaplex UO** Item number: **605053**

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture Stabilizer for membrane systems

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

aqua plus Wasser- und Recyclingsysteme GmbH
Am Barnberg 14
D-73560 Böbingen an der Rems

Tel. (+49)7173 71 44 18-0

E-Mail: info@aqua-plus.de

Further information obtainable from: E-Mail: info@aqua-plus.de

1.4 Emergency telephone number:

international:

24h Emergency contact number +49 700 24 112 112 (SCH)

Consulting in German and English.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

The product is not classified, according to the CLP regulation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 not applicable

Hazard pictograms not applicable

Signal word not applicable

Hazard statements not applicable

Additional information:

Contains Glutaraldehyde. May produce an allergic reaction.

Safety data sheet available on request.

Contains biocidal products: Glutaraldehyde

2.3 Other hazards

Results of PBT and vPvB assessment

PBT:

The substance/mixture does not contain a constituent above legal limits that meets the criteria for PBT (persistent, bioaccumulative and toxic).

vPvB:

The substance/mixture does not contain any components above legal limits that meet the criteria for vPvB (very persistent and very bioaccumulative).

Determination of endocrine-disrupting properties

The product does not contain any substance above the legal limits that is included in the list established under Article 59(1) of Regulation (EC) No 1907/2006 on the basis of endocrine disrupting properties or that has endocrine disrupting or endocrine disrupting properties according to Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

endocrine disrupting properties.

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: **aquaplex UO**

(Contd. of page 1)

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** phosphino carboxylic acid, aqueous solution

- **Dangerous components:**

CAS: 111-30-8 EINECS: 203-856-5 Index number: 605-022-00-X Reg.nr.: 01-2119455549-26	Glutaraldehyde Acute Tox. 3, H301; Acute Tox. 2, H330; Resp. Sens. 1, H334; Skin Corr. 1B, H314; Aquatic Acute 1, H400; Aquatic Chronic 2, H411; Skin Sens. 1A, H317; STOT SE 3, H335, EUH071 Specific concentration limit: STOT SE 3; H335: C ≥ 0.5 %	<0.1%
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- **SVHC**

None of the ingredients is listed.

- **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Immediately rinse with water.
- **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing** Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** water, dry extinguishing media, foam, carbon dioxide (CO₂)
- **5.2 Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
phosphorus oxides
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **6.4 Reference to other sections**
No dangerous substances are released.
See Section 7 for information on safe handling

(Contd. on page 3)

EU

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: aquaplex UO

(Contd. of page 2)

See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
 Store only in the original receptacle.
 Do not use light alloy receptacles.
- **Information about storage in one common storage facility:**
 Do not store together with oxidizing substances.
 Store away from reducing agents.
- **Further information about storage conditions:** Protect from frost.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
 The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures**
 The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:** Not required.
- **Hand protection**



Protective gloves (EN 374)

Preventive skin protection by use of skin-protecting agents is recommended.

- **Material of gloves**

Neoprene
 Nitrile rubber, NBR
 Polyvinyl chloride (PVC)

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Because of the large variety of types, the instructions of the manufacturer must be observed.

- **Eye/face protection**



Safety glasses

(Contd. on page 4)

EU

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: aquaplex UO

(Contd. of page 3)

- **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Physical state	Fluid
· Colour:	Light yellow
· Odour:	Light
· Odour threshold:	Not determined.
· Melting point/freezing point:	undetermined
· Boiling point or initial boiling point and boiling range	undetermined
· Flammability	Not applicable.
· Lower and upper explosion limit	
· Lower:	Not determined.
· Upper:	Not determined.
· Flash point:	Not applicable
· Decomposition temperature:	Not determined.
· pH at 20 °C	3.5 (DIN 19268)
· Viscosity:	
· Kinematic viscosity	Not determined.
· dynamic:	Not determined.
· Solubility	
· Water:	Fully miscible
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure:	Not determined.
· Density and/or relative density	
· Density at 20 °C:	1.16-1.21 g/cm ³ (DIN 51757)
· Relative density	Not determined.
· Vapour density	Not determined.

· 9.2 Other information

· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· Solvent separation test	
· VOC (EU)	0.10 %
· Change in condition	
· Evaporation rate	Not determined.

· Information with regard to physical hazard classes

· Explosives	not applicable
· Flammable gases	not applicable
· Aerosols	not applicable
· Oxidising gases	not applicable
· Gases under pressure	not applicable
· Flammable liquids	not applicable
· Flammable solids	not applicable
· Self-reactive substances and mixtures	not applicable

(Contd. on page 5)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: aquaplex UO

(Contd. of page 4)

· Pyrophoric liquids	not applicable
· Pyrophoric solids	not applicable
· Self-heating substances and mixtures	not applicable
· Substances and mixtures, which emit flammable gases in contact with water	not applicable
· Oxidising liquids	not applicable
· Oxidising solids	not applicable
· Organic peroxides	not applicable
· Corrosive to metals	not applicable
· Desensitised explosives	not applicable

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:**
Alkalis
strong oxidizing agents
- **10.6 Hazardous decomposition products:** None with appropriate handling and storage.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
May produce an allergic reaction.
The product was not tested. The statements is derived from the characteristics of the single components.
- **11.2 Information on other hazards**

· **Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.

(Contd. on page 6)

EU

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: aquaplex UO

(Contd. of page 5)

- **12.2 Persistence and degradability** Not easily biodegradable
- **Other Information:** No data available
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **According to the formulation contains the following heavy metals and compounds from the EU guideline NO. 2006/11/EC:**
phosphoric compounds, organic
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation** Must be specially treated adhering to official regulations.
- **Waste disposal key:**
The allocation of the waste disposal key number is to be executed after the European refuse catalog industry and process specifically.
- **Uncleaned packaging:**
- **Recommendation:**
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- | | |
|---|-----------------|
| <ul style="list-style-type: none"> · 14.1 UN number or ID number · ADR, ADN, IMDG, IATA | not applicable |
| <ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR, ADN, IMDG, IATA | not applicable |
| <ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA · Class | not applicable |
| <ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA | not applicable |
| <ul style="list-style-type: none"> · 14.5 Environmental hazards: | Not applicable. |
| <ul style="list-style-type: none"> · 14.6 Special precautions for user | Not applicable. |
| <ul style="list-style-type: none"> · 14.7 Maritime transport in bulk according to IMO instruments | Not applicable. |

(Contd. on page 7)

EU

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: aquaplex UO

(Contd. of page 6)

 · **UN "Model Regulation":** not applicable

SECTION 15: Regulatory information

 · **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

 · **Dutch List of Substances of Very High Concern (ZZS)**

111-30-8 | Glutaraldehyde

 · **Directive 2012/18/EU**

 · **Named dangerous substances - ANNEX I** None of the ingredients is listed.

 · **Regulation (EU) No 649/2012**

None of the ingredients is listed.

 · **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

 · **REGULATION (EU) 2019/1148**

 · **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

 · **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

 · **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

 · **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

 · **National regulations**

 · **Waterhazard class:**

Water hazard class (D) 1 (Self-assessment): slightly hazardous for water.

Water hazard (NL): B(4) low hazard for aquatic organisms

AwSV (Germany), Attachment 1 (5.2)

 · **MAL-Code:** 4-1

 · **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

 · **Department issuing SDS:** Department laboratory

 · **Version number of previous version:** 8

 · **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

(Contd. on page 8)

EU

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.02.2023

Version number 9 (replaces version 8)

Issue: 15.02.2023

Trade name: aquaplex UO

(Contd. of page 7)

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

MAL-Code: Måleteknisk Arbejdshygienisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 2: Acute toxicity – Category 2

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1A: Skin sensitisation – Category 1A

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

. * **Data compared to the previous version altered.**

EU

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Mixture name: mixture of Calcium dihydroxide and water
Synonyms: Milk of lime, lime water, lime putty, soaked lime,

This list is not exhaustive.

Trade name: FELS Kalkmilch / FELS Milk of lime

1.2. Relevant identified uses of the mixture and uses advised against

Use of the mixture:

The substance is intended for the following non-exhaustive list of uses:
Building material industry, Chemical industry, Metal industry, Civil engineering, Biocidal use, Environmental protection (e.g. flue gas treatment, water / waste water treatment, sludge treatment, Drinking water treatment), Feed, Food and Pharmaceutical industry, Paper and paint industry

1.2.1 Identified uses

All uses listed in table 1 of the Appendix of this SDS are identified uses.

1.2.2 Uses advised against

No use identified in Table 1 of the Appendix of this SDS is advised against.

1.3. Details of the supplier of the safety data sheet

Name: Fels Vertriebs und Service GmbH & Co. KG
Address: Geheimrat-Ebert-Straße 12, D-38640 Goslar
Phone N°: +49(0) 5321 703 408
Fax N°: +49(0) 5321 703 425
E-mail of competent person responsible
for SDS in the MS or in the EU: reach@fels.de

1.4. Emergency telephone number

European Emergency N°: 112
National centre for Prevention and Treatment of
Intoxications N°: +49(0) 551 19240
(Giftnotruf GIZ Nord -
Universitätsmedizin Göttingen)
Emergency telephone at the company: +49(0) 39454 58 441
Available outside office hours: ☐ Yes ☒ No

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the mixture

Information on a mixture containing a $\text{Ca}(\text{OH})_2$ content above 20%.

2.1.1. Classification according to Regulation (EC) 1272/2008

Skin irrit. 2, H315

Eye Dam. 1, H318

STOT SE 3, H335

2.1.2. Additional information

For full text of classifications and hazard statements: see SECTION 16

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) 1272/2008

Signal word: Danger

Hazard pictograms:



Hazard statements:

H315:	Causes skin irritation
H318:	Causes serious eye damage
H335:	May cause respiratory irritation

Precautionary statements:

P102:	Keep out of reach of children
P280:	Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338:	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352:	IF ON SKIN: Wash with plenty of water
P310:	Immediately call a POISON CENTER / doctor
P261:	Avoid breathing dust/spray
P304+P340:	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P501:	Dispose of contents / container for proper disposal in accordance with national regulations

2.3 Other hazards

The constituent calcium dihydroxide does not meet the criteria for PBT or vPvB substance.
No other hazards identified.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not relevant

3.2. Mixtures

Description of the mixture:

Mixture of calcium dihydroxide and water

After Regulation (EC) No 1272/2008 classified ingredients:

CAS number	EC number	Registration No	Identification name	Weight % content (or range)	Classification according to Regulation (EC) No 1272/2008 [CLP]
1305-62-0	215-137-3	01-2119475151-45-0046	Calcium dihydroxide	5... 50 %	<i>Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335</i>

Substances of Very High Concern (SVHC), which have been published pursuant to Article 59 of Regulation (EC) No 1907/2006, are not contained in a concentration of more than 0.1 percent by mass.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice

No known delayed effects. Consult a physician for all exposures except for minor instances.

Following inhalation

Remove source of mist/spray or move person to fresh air. Obtain medical attention immediately.

Following skin contact

Wash affected area immediately with plenty of water. Remove contaminated clothing. If necessary seek medical advice.

Following eye contact

Rinse eyes immediately with plenty of water and seek medical advice.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

The mixture is not acutely toxic via the oral, dermal, or inhalation route. It is classified as irritating to skin and to the respiratory system and entails a risk of serious damage to the eye. There is no concern for adverse systemic effects because local effects (pH-effect) are the major health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

Follow the advises given in Section 4.1

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Suitable extinguishing media

Suitable extinguishing media: The mixture is not combustible. Use a dry powder, foam or CO2 fire extinguisher to extinguish the surrounding fire.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2. Unsuitable extinguishing media

None

5.2. Special hazards arising from the mixture

None

5.3. Advice for fire fighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Ensure adequate ventilation.

Keep mist and spray levels to a minimum.

Keep unprotected persons away.

Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see Section 8).

Avoid inhalation of mist and spray – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see Section 8).

6.1.2. For emergency responders

Keep mist and spray levels to a minimum.

Ensure adequate ventilation.

Keep unprotected persons away.

Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see Section 8).

Avoid inhalation of mist and spray – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see Section 8).

6.2. Environmental precautions

Contain the spillage. Avoid uncontrolled spills to watercourses and drains (pH increase). Any large spillage into watercourses must be alerted to the Environment Agency or other regulatory body.

6.3. Methods and material for containment and cleaning up

Pick up the product mechanically in.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

6.4. Reference to other sections

For more information on exposure controls/personal protection or disposal considerations, please check Section 8 and 13 and the annex of this safety data sheet.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. Protective measures

Avoid contact with skin and eyes. Wear protective equipment (refer to Section 8 of this safety data sheet). Do not wear contact lenses when handling this product. It is also advisable to have individual pocket eyewash. Keep mist and spray levels to a minimum. Handling systems should preferably be enclosed. When handling bulks usual precautions should be paid to the risks outlined in the Council Directive 90/269/EEC.

7.1.2. Advice on general occupational hygiene

Avoid inhalation of mists and sprays, ingestion and contact with skin and eyes. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no drinking, eating and smoking at the workplace. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home.

7.2. Conditions for safe storage, including any incompatibilities

Bulk storage should be in purpose – designed silos. Keep away from acids and nitro compounds. Keep out of reach of children. Do not use aluminium for transport or storage.

7.3. Specific end use(s)

Please check the identified uses in the Appendix of this SDS.

For more information please see the relevant exposure scenario, available in the Appendix.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

All the information of this section refers to the main ingredient “calcium dihydroxide”.

8.1. Control parameters

DNELs:

Route of exposure	Workers			
	Acute effect local	Acute effects systemic	Chronic effects local	Chronic effects systemic
Oral	Not required			
Inhalation	4 mg / m ³ (Respirable dust)	No hazard identified	1 mg / m ³ (Respirable dust)	No hazard identified
Dermal	Hazard identified but no DNEL available	No hazard identified	Hazard identified but no DNEL available	No hazard identified

* This refers to the solids in the mixture

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Route of exposure	Consumers			
	Acute effect local	Acute effects systemic	Chronic effects local	Chronic effects systemic
Oral	No exposure expected	No hazard identified	No exposure expected	No hazard identified
Inhalation	4 mg / m ³ (Respirable dust)	No hazard identified	1 mg / m ³ (Respirable dust)	No hazard identified
Dermal	Hazard identified but no DNEL available	No hazard identified	Hazard identified but no DNEL available	No hazard identified

* This refers to the solids in the mixture

PNECs:

Environment protection target	PNEC	Remarks
Fresh water	0.49 mg / L	
Freshwater sediments	No PNEC available	Insufficient data available
Marine water	0.32 mg / L	
Marine sediments	No PNEC available	Insufficient data available
Food (bioaccumulation)	No hazard identified	No potential for bioaccumulation
Microorganisms in sewage treatment	3 mg / L	
Soil (agricultural)	1080 mg / kg soil dw	
Air	No hazard identified	

OELs (Europe):

CAS-No.	Type of limit	Time-weighted average (mg/m³)		Short-term exposure limit (mg/m³)		Origin
Calcium dihydroxide						
1305-62-0	Reference OEL	8 h	1 (A)	15 min	4 (A)	Directive (EU) 2017/164

A = respirable (alveoli) dust fraction

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

National OELs (Germany):

CAS-No.	Type of assessment value	Assessment value (mg/m³)		Short-term exposure limit fact. (cat.) period of time	Origin	Monitoring procedures, e.g.
Calcium dihydroxide						
1305-62-0	OEL	8 h	1 (E)	2 (I) 15 min	TRGS 900	TRGS 402
General dust limit (not substance specific)						
	OEL	8 h	1,25 (A) 10 (E)	2 (II) 15 min	TRGS 900	TRGS 402

A = respirable (alveoli) dust fraction

E = inhalable (total) dust fraction

8.2. Exposure controls

To control potential exposures, intentional generation of mists and spray should be avoided. Consequential misting caused by interaction of fluid with fast moving machinery should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate. Please check the relevant exposure scenario, given in the Appendix of this SDS.

8.2.1. Appropriate engineering controls

If user operations intentionally or consequently generate mist or spray, use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne mist levels below recommended exposure limits.

8.2.2. Individual protection measures, such as personal protective equipment

8.2.2.1. Eye/face protection

Do not wear contact lenses. Closely fitting goggles with side shields, or wide vision full goggles. It is also advisable to have individual pocket eyewash.

8.2.2.2. Skin protection

Since calcium dihydroxide is classified as irritating to skin, dermal exposure has to be minimised as far as technically feasible. The use of protective gloves (nitrile), protective standard working clothes fully covering skin, full length trousers, long sleeved overalls, with close fittings at openings and shoes resistant to caustics and avoiding dust penetration are required to be worn.

8.2.2.3. Respiratory protection

Local ventilation to keep levels below established threshold values is recommended. A suitable particle filter mask is recommended, depending on the expected exposure levels - please check the relevant exposure scenario, given in the Appendix/available via your supplier.

8.2.2.4. Thermal hazards

The substance does not represent a thermal hazard, thus special consideration is not required.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

8.2.3. Environmental exposure controls

All ventilation systems should be filtered before discharge to atmosphere.

Avoid releasing to the environment.

Contain the spillage. Any large spillage into watercourses must be alerted to the regulatory authority responsible for environmental protection or other regulatory body.

For detailed explanations of the risk management measures that adequately control exposure of the environment to the substance please check the relevant exposure scenario, available via your supplier.

For further detailed information, please check the Appendix of this SDS.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	White or off white (beige) suspension in water
Odour:	odourless
Odour threshold:	not applicable
pH:	12.4 (Ca(OH) ₂ saturated solution at 20 °C)
Melting point:	0 °C (water)
Boiling point:	100 °C (water)
Flash point:	not applicable
Evaporation rate:	not available
Flammability:	non flammable (study result for calcium dihydroxide, EU A.10 method)
Explosive limits:	non explosive (void of any chemical structures commonly associated with explosive properties)
Vapour pressure:	2.3 kPa at 20°C
Vapour density:	0.62
Relative density:	1,06 – 1,38 g/ml depending on concentration
Solubility in water:	1844.9 mg/L (study results for calcium dihydroxide, EU A.6 method)
Partition coefficient:	not applicable
Auto ignition temperature:	no relative self-ignition temperature below 400 °C (study result, EU A.16 method)
Decomposition temperature:	When heated above 580 °C, calcium dihydroxide decomposes to produce calcium oxide (CaO) and water (H ₂ O)
Viscosity:	not applicable
Oxidising properties:	no oxidising properties (Based on the chemical structure, the substance does not contain a surplus of oxygen or any structural groups known to be correlated with a tendency to react exothermally with combustible material)

9.2. Other information

The product is not covered by current knowledge not covered by the definition of Nano-materials of recommendation 2011/696 EU.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

The mixture dissociates resulting in the formation of calcium cations and hydroxyl anions (when below the limit of water solubility).

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

10.2. Chemical stability

Under normal conditions of use and storage, the mixture is stable.

10.3. Possibility of hazardous reactions

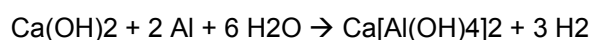
The mixture reacts exothermically with acids. When heated above 580 °C, calcium dihydroxide decomposes to produce calcium oxide (CaO) and water (H₂O): $\text{Ca(OH)}_2 \rightarrow \text{CaO} + \text{H}_2\text{O}$.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

The mixture reacts exothermically with acids to form salts. The mixture reacts with aluminium and brass in the presence of moisture leading to the production of hydrogen.



10.6. Hazardous decomposition products

None.

Further information: The constituent calcium dihydroxide reacts with carbon dioxide to form calcium carbonate, which is a common material in nature.

SECTION 11: TOXICOLOGICAL INFORMATION

The following information refers to the constituent Calcium dihydroxide. For the mixture no data has been determined.

11.1. Information on toxicological effects

11.1.1. Acute toxicity

Oral LD50 > 2000 mg / kg body weight (calcium dihydroxide, OECD 425, rat)
Dermal LD50 > 2500 mg / kg body weight (calcium dihydroxide, OECD 402, rabbit)
Inhalation no data available
Calcium dihydroxide is not acutely toxic.

11.1.2. Skin corrosion/irritation

Calcium dihydroxide irritates the skin (in vivo, rabbit).
Calcium dihydroxide is non-corrosive (in vitro, OECD 431).

11.1.3. Serious eye damage/irritation

Calcium dihydroxide carries the risk of serious eye damage (OECD 405, in vivo, rabbit).

11.1.4. Respiratory or skin sensitisation

No data available. Calcium dihydroxide is not classified as sensitizing due to the mode of action (pH change) and the importance of calcium in the human nutrition. Classification for sensitisation is not warranted.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

11.1.5. Germ cell mutagenicity

Calcium dihydroxide is not genotoxic (in vitro, OECD 471, 473 and 476).

Considering the omnipresence and essentiality of calcium and the physiological non-relevance of any pH shift induced by lime in aqueous media, calcium dihydroxide is apparently devoid of any genotoxic potential.

11.1.6. Carcinogenicity

Calcium (administered as Ca-lactate) is not carcinogenic (test result, rat).

The pH effect of calcium dihydroxide does not lead to a carcinogenic risk.

Human epidemiological data support the lack of carcinogenic potential of calcium dihydroxide.

11.1.7. Reproductive toxicity

Calcium (administered as Ca-carbonate) is not toxic to reproduction (test result, mouse). The pH effect does not cause any risk of reproduction. Human epidemiological data show that there is no potential for the reproductive toxicity of calcium dihydroxide.

No effects on reproduction or development were found in animal experiments or human clinical trials on various calcium salts. Therefore, calcium dihydroxide is not toxic for reproduction and / or development.

11.1.8. STOT-single exposure

From human data it is concluded that calcium dihydroxide irritates the respiratory tract. As summarized and evaluated in the SCOEL Recommendation (Anonymous, 2008), calcium dihydroxide based on human data is irritating to the respiratory system.

11.1.9. STOT-repeated exposure

The toxicity of calcium by ingestion was considered. The upper limit for the total daily intake of calcium (UL) as determined by the Scientific Center on Food (SCF) for adults is: UL = 2500 mg / day, corresponding to 36 mg / kg body weight / day (70 kg person).

Toxicity of $\text{Ca}(\text{OH})_2$ by dermal uptake is not considered relevant because significant uptake is not expected and local skin irritation has been identified as a primary local effect.

Inhalation toxicity of $\text{Ca}(\text{OH})_2$ (local effect, irritation to mucous membranes) was determined by the 8 hour TWA value reported by the Scientific Committee on Occupational Exposure Limits (SCOEL) with 1 mg / m³ A dust (see section 8.1).

11.1.10. Aspiration hazard

It is not known that there is an aspiration hazard when handling $\text{Ca}(\text{OH})_2$.

SECTION 12: ECOLOGICAL INFORMATION

All the information of this section refers to the main constituent calcium dihydroxide

12.1. Toxicity

12.1.1. Acute/Prolonged toxicity to fish

LC₅₀ (96h) for freshwater fish: 50.6 mg/l

LC₅₀ (96h) for marine water fish: 457 mg/l

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

12.1.2. Acute/Prolonged toxicity to aquatic invertebrates

EC₅₀ (48h) for freshwater invertebrates: 49.1 mg/l

LC₅₀ (96h) for marine water invertebrates: 158 mg/l

12.1.3. Acute/Prolonged toxicity to aquatic plants

EC₅₀ (72h) for freshwater algae: 184.57 mg/l

NOEC (72h) for freshwater algae: 48 mg/l

12.1.4. Toxicity to micro-organisms e.g. bacteria

At high concentration, through the rise of pH, calcium dihydroxide is used for disinfection of sewage sludges.

12.1.5. Chronic toxicity to aquatic organisms

NOEC (14d) for marine water invertebrates: 32 mg/l

12.1.6. Toxicity to soil dwelling organisms

EC₁₀/LC₁₀ or NOEC for soil macroorganisms: 2000 mg/kg soil dw

EC₁₀/LC₁₀ or NOEC for soil microorganisms: 12000 mg/kg soil dw

12.1.7. Toxicity to terrestrial plants

NOEC (21d) for terrestrial plants: 1080 mg/kg

12.1.8. General effect

Acute pH-effect. Although the mixture is useful to correct water acidity, an excess of more than 1 g/l may be harmful to aquatic life. pH-value above 12 will rapidly decrease as result of dilution and carbonation.

12.2. Persistence and degradability

Not relevant for inorganic substances

12.3. Bioaccumulative potential

Not relevant for inorganic substances

12.4. Mobility in soil

Calcium dihydroxide, which is sparingly soluble, presents a low mobility in most soils

12.5. Results of PBT and vPvB assessment

Not relevant for inorganic substances

12.6. Other adverse effects

No other adverse effects are identified

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Disposal of the mixture as well as containers, which have been used to transport or storage shall be in accordance with national and regional regulations.

Waste code according to European Waste Catalogue: 10 13 04 (waste from calcination and hydration of lime).

Unused residual quantities of the product

Store in closed, labeled containers and re-use if possible, taking into account the maximum storage time. Do not let product slurry enter drains or watercourses.

Containers

Empty containers and recycle. Otherwise, disposal of completely empty containers depending on container type according to European Waste Catalogue, e.g. Code 15 01 02 (plastic packaging).

SECTION 14: TRANSPORT INFORMATION

Calcium dihydroxide is not classified as hazardous for transport [ADR (road), RID (rail), ICAO/IATA (air), ADN (inland waterways) and IMDG (sea)].

14.1. UN-Number

Not regulated

14.2. UN proper shipping name

Not regulated

14.3. Transport hazard class

Not regulated

14.4. Packing group

Not regulated

14.5. Environmental hazards

None

14.6. Special precautions for user

Avoid any release of dust during transportation.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not regulated

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance

Authorisations: Not required

Restrictions on use: None

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Other EU regulations: The substance calcium dihydroxide is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.

National regulations Germany:

Water hazard class: WGK 1 (slightly hazardous for water)
Assessment acc. to AwSV
Storage class: LGK 12 by TRGS 510 (non-flammable liquids)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the ingredient calcium dihydroxide.

SECTION 16: OTHER INFORMATION

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16.1 Classifications and Hazard Statements

Skin Irrit. 2; H315 – Skin irritation category 2; Causes skin irritation.
Eye Dam. 1; H318: - Irreversible effects on the eye category 1; Causes serious eye damage.
STOT SE 3; H335 – Specific target organ toxicity (single exposition) category 3; May cause respiratory irritation;

16.2 Precautionary Statements

P102: Keep out of reach of children
P280: Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352: IF ON SKIN: Wash with plenty of water /...
P310: Immediately call a POISON CENTER / doctor / ...
P261: Avoid breathing dust/spray
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P501: Dispose of contents/container to ...

16.3 Abbreviations

AwSV Verordnung über Anlagen z. Umgang mit wassergefährdenden Stoffen
EC50: median effective concentration
LC₅₀: median lethal concentration
LD₅₀: median lethal dose
NOEC: no observable effect concentration
OEL: occupational exposure limit
DNEL: Limit below which the substance has no effect (Derived No-Effect Level)
PBT: persistent, bioaccumulative, toxic chemical
PNEC: predicted no-effect concentration
STEL: short-term exposure limit
TRGS 402: Technische Regel für Gefahrstoffe 402 Ermitteln und Beurteilen der Gefährdungen bei Tätigkeiten mit Gefahrstoffen: Inhalative Exposition
TRGS 510: Technische Regel für Gefahrstoffe 510 Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
TRGS 900: Technische Regel für Gefahrstoffe 900 Arbeitsplatzgrenzwerte
TWA: time weighted average
vPvB: very persistent, very bioaccumulative chemical

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

16.4 Key literature references

Anonymous, 2006: Tolerable upper intake levels for vitamins and minerals Scientific Committee on Food, European Food Safety Authority, ISBN: 92-9199-014-0 [SCF document]

Anonymous, 2008: Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL) for calcium oxide (CaO) and calcium dihydroxide (Ca(OH)₂), European Commission, DG Employment, Social Affairs and Equal Opportunities, SCOEL/SUM/137 February 2008

Internet:

<http://baua.de>

<http://publikationen.dguv.de>

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16.5 Revision

The following sections have been revised:

- | | |
|------|---|
| 1.3 | Details of the supplier of the safety data sheet |
| 8.1 | Control parameters |
| 8.2 | Exposure controls |
| 11.1 | Information on toxicological effects |
| 15.1 | Safety, health and environmental regulations / legislation specific for the mixture |
| 16 | Other information |

Disclaimer

The information in this SDS is based on the current knowledge of the issuer with regard to the safety requirements of calcium oxide. It is pointed out expressly that the statements do not include any description of the nature of the product and are not guarantees of properties.

APPENDIX including Exposure Scenarios 9.1, 9.6 and 9.15

APPENDIX: EXPOSURE SCENARIOS

The current document includes all relevant occupational and environmental exposure scenarios (ES) for the production and use of milk of lime as required under the REACH Regulation (Regulation (EC) No 1907/2006). For the development of the ES the Regulation and the relevant REACH Guidance have been considered. For the description of the covered uses and processes, the "R.12 – Use descriptor system" guidance (Version: 2, March 2010, ECHA-2010-G-05-EN), for the description and implementation of risk management measures (RMM) the "R.13 – Risk management measures" guidance (Version: 1.1, May 2008), for the occupational exposure estimation the "R.14 – Occupational exposure estimation" guidance (Version: 2, May 2010, ECHA-2010-G-09-EN) and for the actual environmental exposure assessment the "R.16 – Environmental Exposure Assessment" (Version: 2, May 2010, ECHA-10-G-06-EN) was used.

Methodology used for environmental exposure assessment

The environmental exposure scenarios only address the assessment at the local scale, including municipal sewage treatment plants (STPs) or industrial waste water treatment plants (WWTPs) when applicable, for industrial and professional uses as any effects that might occur is expected to take place on a local scale.

1) Industrial uses (local scale)

The exposure and risk assessment is only relevant for the aquatic environment, when applicable including STPs/WWTPs, as emissions in the industrial stages mainly apply to (waste) water. The aquatic effect and risk assessment only deal with the effect on organisms/ecosystems due to possible pH changes related to OH⁻ discharges. The exposure assessment for the aquatic environment only deals with the possible pH changes in STP effluent and surface water related to the OH⁻ discharges at the local scale and is performed by assessing the resulting pH impact: the surface water pH should not increase above 9 (In general, most aquatic organisms can tolerate pH values in the range of 6-9).

Risk management measures related to the environment aim to avoid discharging calcium dihydroxide solutions into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes. Regular control of the pH value during introduction into open waters is required. Discharges should be carried out such that pH changes in receiving surface waters are minimised. The effluent pH is normally measured and can be neutralised easily, as often required by national laws.

2) Professional uses (local scale)

The exposure and risk assessment is only relevant for the aquatic and terrestrial environment. The aquatic effect and risk assessment is determined by the pH effect. Nevertheless, the classical risk characterisation ratio (RCR), based on PEC (predicted environmental concentration) and PNEC (predicted no effect concentration) is calculated. The professional uses on a local scale refer to applications on agricultural or urban soil. The environmental exposure is assessed based on data and a modelling tool. The modelling FOCUS/ Exposit tool is used to assess terrestrial and aquatic exposure (typically conceived for biocidal applications).

Details and scaling approach indications are reported in the specific scenarios.

Methodology used for occupational exposure assessment

By definition an exposure scenario (ES) has to describe under which operational conditions (OC) and risk management measure (RMMs) the substance can be handled safely. This is demonstrated if the estimated exposure level is below the respective derived no-effect level (DNEL), which is expressed in the risk characterisation ratio (RCR). For workers, the repeated dose DNEL for inhalation as well as the acute DNEL for inhalation are based on the respective recommendations of the scientific committee on occupational exposure limits (SCOEL) being 1 mg/m³ and 4 mg/m³, respectively. In cases where neither measured data nor analogous data are available, human exposure is assessed with the aid of a modelling tool. At the first tier screening level, the MEASE tool (<http://www.ebrc.de/mease.html>) is used to assess inhalation exposure according to the ECHA guidance (R.14).

Since the SCOEL recommendation refers to respirable dust while the exposure estimates in MEASE reflect the inhalable fraction, an additional safety margin is inherently included in the exposure scenarios below when MEASE has been used to derive exposure estimates.

Methodology used for consumer exposure assessment

By definition an ES has to describe under which conditions the substances, preparation or articles can be handled safely. In cases where neither measured data nor analogous data are available, exposure is assessed with the aid of a modelling tool.

For consumers, the repeated dose DNEL for inhalation as well as the acute DNEL for inhalation are based on the respective recommendations of the Scientific Committee on Occupational Exposure Limits (SCOEL), being 1 mg/m³ and 4 mg/m³, respectively.

For inhalation exposure to powders the data, derived from van Hemmen (van Hemmen, 1992: Agricultural pesticide exposure data bases for risk assessment. Rev Environ Contam Toxicol. 126: 1-85.), has been used to calculate the inhalation exposure. The inhalation exposure for consumers is estimated at 15 µg/hr or 0.25 µg/min. For larger tasks the inhalation exposure is expected to be higher. A factor of 10 is suggested when the product amount exceeds 2.5 kg, resulting in the inhalation exposure of 150 µg/hr. To convert these values in mg/m³ a default value of 1.25 m³/hr for the breathing volume under light working conditions will be assumed (van Hemmen, 1992) giving 12 µg/m³ for small tasks and 120 µg/m³ for larger tasks.

When the preparation or substance is applied in granular form or as tablets, reduced exposure to dust was assumed. To take this into account if data about particle size distribution and attrition of the granule are lacking, the model for powder formulations is used, assuming a reduction in dust formation by 10 % according to Becks and Falks (Manual for the authorisation of pesticides. Plant protection products. Chapter 4 Human toxicology; risk operator, worker and bystander, version 1.0., 2006).

For dermal exposure and exposure to the eye a qualitative approach has been followed, as no DNEL could be derived for this route due to the irritating properties of calcium oxide. Oral exposure was not assessed as this is not a foreseeable route of exposure regarding the uses addressed.

Since the SCOEL recommendation refers to respirable dust while the exposure estimates by the model from van Hemmen reflect the inhalable fraction, an additional safety margin is inherently included in the exposure scenarios below, i.e. the exposure estimates are very conservative.

The exposure assessment of milk of lime in professional, industrial and consumer uses is performed and organized based on several scenarios. An overview of the scenarios and the coverage of substance life cycle is presented in Table 1.

Created: 01.07.2018

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Version: 2.1

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Table 1: Overview on exposure scenarios and coverage of substance life cycle

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.1	Manufacture and industrial uses of aqueous solutions of lime substances	X	X	X		X	1	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.6	Professional uses of aqueous solutions of lime substances		X	X		X	6	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 12, 13, 15, 16, 17, 18, 19	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f
9.15	Consumer use of lime substances as water treatment chemicals in aquaria				X		15	21	20, 37			8

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ES number 9.1: Manufacture and industrial uses of aqueous solutions of lime substances

Exposure Scenario Format (1) addressing uses carried out by workers		
1. Title		
Free short title	Manufacture and industrial uses of aqueous solutions of lime substances	
Systematic title based on use descriptor	SU3, SU1, SU2a, SU2b, SU4, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU23, SU24 PC1, PC2, PC3, PC7, PC8, PC9a, PC9b, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21, PC23, PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31, PC32, PC33, PC34, PC35, PC36, PC37, PC38, PC39, PC40 AC1, AC2, AC3, AC4, AC5, AC6, AC7, AC8, AC10, AC11, AC13 (appropriate PROCs and ERCs are given in Section 2 below)	
Processes, tasks and/or activities covered	Processes, tasks and/or activities covered are described in Section 2 below.	
Assessment Method	The assessment of inhalation exposure is based on the exposure estimation tool MEASE.	
2. Operational conditions and risk management measures		
PROC/ERC	REACH definition	Involved tasks
PROC 1	Use in closed process, no likelihood of exposure	Further information is provided in the ECHA Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (ECHA-2010-G-05-EN).
PROC 2	Use in closed, continuous process with occasional controlled exposure	
PROC 3	Use in closed batch process (synthesis or formulation)	
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises	
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	
PROC 7	Industrial spraying	
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
PROC 8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
PROC 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
PROC 10	Roller application or brushing	
PROC 12	Use of blowing agents in manufacture of foam	
PROC 13	Treatment of articles by dipping and pouring	
PROC 14	Production of preparations or articles by tableting, compression, extrusion, pelletisation	
PROC 15	Use as laboratory reagent	
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected	
PROC 17	Lubrication at high energy conditions and in partly open process	
PROC 18	Greasing at high energy conditions	
PROC 19	Hand-mixing with intimate contact and only PPE available	
ERC 1-7, 12	Manufacture, formulation and all types of industrial uses	
ERC 10, 11	Wide-dispersive outdoor and indoor use of long-life articles and materials	

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

2.1 Control of workers exposure

Product characteristic

According to the MEASE approach, the substance-intrinsic emission potential is one of the main exposure determinants. This is reflected by an assignment of a so-called fugacity class in the MEASE tool. For operations conducted with solid substances at ambient temperature the fugacity is based on the dustiness of that substance. Whereas in hot metal operations, fugacity is temperature based, taking into account the process temperature and the melting point of the substance. As a third group, high abrasive tasks are based on the level of abrasion instead of the substance intrinsic emission potential. The spraying of aqueous solutions (PROC7 and 11) is assumed to be involved with a medium emission.

PROC	Use in preparation	Content in preparation	Physical form	Emission potential
PROC 7	not restricted		aqueous solution	medium
All other applicable PROCs	not restricted		aqueous solution	very low

Amounts used

The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation (industrial vs. professional) and level of containment/automation (as reflected in the PROC) is the main determinant of the process intrinsic emission potential.

Frequency and duration of use/exposure

PROC	Duration of exposure
PROC 7	≤ 240 minutes
All other applicable PROCs	480 minutes (not restricted)

Human factors not influenced by risk management

The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m³/shift (8 hours).

Other given operational conditions affecting workers exposure

Since aqueous solutions are not used in hot-metallurgical processes, operational conditions (e.g. process temperature and process pressure) are not considered relevant for occupational exposure assessment of the conducted processes.

Technical conditions and measures at process level (source) to prevent release

Risk management measures at the process level (e.g. containment or segregation of the emission source) are generally not required in the processes.

Technical conditions and measures to control dispersion from source towards the worker

PROC	Level of separation	Localised controls (LC)	Efficiency of LC (according to MEASE)	Further information
PROC 7	Any potentially required separation of workers from the emission source is indicated above under "Frequency and duration of exposure". A reduction of exposure duration can be achieved, for example, by the installation of ventilated (positive pressure) control rooms or by removing the worker from workplaces involved with relevant exposure.	local exhaust ventilation	78 %	-
PROC 19		not applicable	na	-
All other applicable PROCs		not required	na	-

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure a safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating and smoking at the workplace, the wearing of standard working clothes and shoes unless otherwise stated below. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. Do not blow dust off with compressed air.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Conditions and measures related to personal protection, hygiene and health evaluation				
PROC	Specification of respiratory protective equipment (RPE)	RPE efficiency (assigned protection factor, APF)	Specification of gloves	Further personal protective equipment (PPE)
PROC 7	FFP1 mask	APF=4	Since calcium dihydroxide is classified as irritating to skin, the use of protective gloves is mandatory for all process steps.	Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
All other applicable PROCs	not required	na		
<p>Any RPE as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with “duration of exposure” above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker’s capability of using tools and of communicating are reduced during the wearing of RPE. For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scars and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely.</p> <p>The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers.</p> <p>An overview of the APFs of different RPE (according to BS EN 529:2005) can be found in the glossary of MEASE.</p>				
2.2 Control of environmental exposure				
Amounts used				
The daily and annual amount per site (for point sources) is not considered to be the main determinant for environmental exposure.				
Frequency and duration of use				
Intermittent (< 12 time per year) or continuous use/release				
Environment factors not influenced by risk management				
Flow rate of receiving surface water: 18000 m³/day				
Other given operational conditions affecting environmental exposure				
Effluent discharge rate: 2000 m³/day				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil				
Risk management measures related to the environment aim to avoid discharging lime solutions into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes. Regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised (e.g. through neutralisation). In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms. The justification for this risk management measure can be found in the introduction section.				
Conditions and measures related to waste				
Solid industrial waste of lime should be reused or discharged to the industrial wastewater and further neutralized if needed.				

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

3. Exposure estimation and reference to its source

Occupational exposure

The exposure estimation tool MEASE was used for the assessment of inhalation exposure. The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and has to be below 1 to demonstrate a safe use. For inhalation exposure, the RCR is based on the DNEL for calcium dihydroxide of 1 mg/m³ (as respirable dust) and the respective inhalation exposure estimate derived using MEASE (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction being a sub-fraction of the inhalable fraction according to EN 481.

PROC	Method used for inhalation exposure assessment	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19	MEASE	< 1 mg/m ³ (0.001 – 0.66)	Since calcium dihydroxide are classified as irritating to skin, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	

Environmental exposure

The environmental exposure assessment is only relevant for the aquatic environment, when applicable including STPs/WWTPs, as emissions of lime substance in the different life-cycle stages (production and use) mainly apply to (waste) water. The aquatic effect and risk assessment only deal with the effect on organisms/ecosystems due to possible pH changes related to OH⁻ discharges, being the toxicity of Ca²⁺ is expected to be negligible compared to the (potential) pH effect. Only the local scale is being addressed, including municipal sewage treatment plants (STPs) or industrial waste water treatment plants (WWTPs) when applicable, both for production and industrial use as any effects that might occur would be expected to take place on a local scale. The high water solubility and very low vapour pressure indicate that lime substance will be found predominantly in water. Significant emissions or exposure to air are not expected due to the low vapour pressure of lime substance. Significant emissions or exposure to the terrestrial environment are not expected either for this exposure scenario. The exposure assessment for the aquatic environment will therefore only deal with the possible pH changes in STP effluent and surface water related to the OH⁻ discharges at the local scale. The exposure assessment is approached by assessing the resulting pH impact: the surface water pH should not increase above 9.

Environmental emissions	The production of lime substance can potentially result in an aquatic emission and locally increase the lime substance concentration and affect the pH in the aquatic environment. When the pH is not neutralised, the discharge of effluent from lime substance production sites may impact the pH in the receiving water. The pH of effluents is normally measured very frequently and can be neutralised easily as often required by national laws.
Exposure concentration in waste water treatment plant (WWTP)	Waste water from lime substance production is an inorganic wastewater stream and therefore there is no biological treatment. Therefore, wastewater streams from lime substance production sites will normally not be treated in biological waste water treatment plants (WWTPs), but can be used for pH control of acid wastewater streams that are treated in biological WWTPs.
Exposure concentration in aquatic pelagic compartment	When lime substance is emitted to surface water, sorption to particulate matter and sediment will be negligible. When lime is rejected to surface water, the pH may increase, depending on the buffer capacity of the water. The higher the buffer capacity of the water, the lower the effect on pH will be. In general the buffer capacity preventing shifts in acidity or alkalinity in natural waters is regulated by the equilibrium between carbon dioxide (CO ₂), the bicarbonate ion (HCO ₃ ⁻) and the carbonate ion (CO ₃ ²⁻).
Exposure concentration in sediments	The sediment compartment is not included in this ES, because it is not considered relevant for lime substance: when lime substance is emitted to the aquatic compartment, sorption of to sediment particles is negligible.
Exposure concentrations in soil and groundwater	The terrestrial compartment is not included in this exposure scenario, because it is not considered to be relevant.
Exposure concentration in atmospheric compartment	The air compartment is not included in this CSA because it is considered not relevant for lime substance: when emitted to air as an aerosol in water, lime substance is neutralised as a result of its reaction with CO ₂ (or other acids), into HCO ₃ ⁻ and Ca ²⁺ . Subsequently, the salts (e.g. calcium(bi)carbonate) are washed out from the air and thus the atmospheric emissions of neutralised lime substance largely end up in soil and water.
Exposure concentration relevant for the food chain (secondary poisoning)	Bioaccumulation in organisms is not relevant for lime substance: a risk assessment for secondary poisoning is therefore not required.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Occupational exposure

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below. If measured data are not available, the DU may make use of an appropriate scaling tool such as MEASE (www.ebrc.de/mease.html) to estimate the associated exposure. The dustiness of the substance used can be determined according to the MEASE glossary. For example, substances with a dustiness less than 2.5 % according to the Rotating Drum Method (RDM) are defined as "low dusty", substances with a dustiness less than 10 % (RDM) are defined as "medium dusty" and substances with a dustiness ≥ 10 % are defined as "high dusty".

DNEL_{inhalation}: 1 mg/m³ (as respirable dust)

Important note: The DU has to be aware of the fact that apart from the long-term DNEL given above, a DNEL for acute effects exists at a level of 4 mg/m³. By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2). When using MEASE for the derivation of exposure estimates, it is noted that the exposure duration should only be reduced to half-shift as a risk management measure (leading to an exposure reduction of 40 %).

Environmental exposure

If a site does not comply with the conditions stipulated in the safe use ES, it is recommended to apply a tiered approach to perform a more site-specific assessment. For that assessment, the following stepwise approach is recommended.

Tier 1: retrieve information on effluent pH and the contribution of the lime substance on the resulting pH. Should the pH be above 9 and be predominantly attributable to lime, then further actions are required to demonstrate safe use.

Tier 2a: retrieve information on receiving water pH after the discharge point. The pH of the receiving water shall not exceed the value of 9. If the measures are not available, the pH in the river can be calculated as follows:

$$pH_{river} = \log \left[\frac{Q_{effluent} * 10^{pH_{effluent}} + Q_{riverupstream} * 10^{pH_{upstream}}}{Q_{riverupstream} + Q_{effluent}} \right] \quad (Eq 1)$$

Where:

Q effluent refers to the effluent flow (in m³/day)

Q river upstream refers to the upstream river flow (in m³/day)

pH effluent refers to the pH of the effluent

pH upstream river refers to the pH of the river upstream of the discharge point

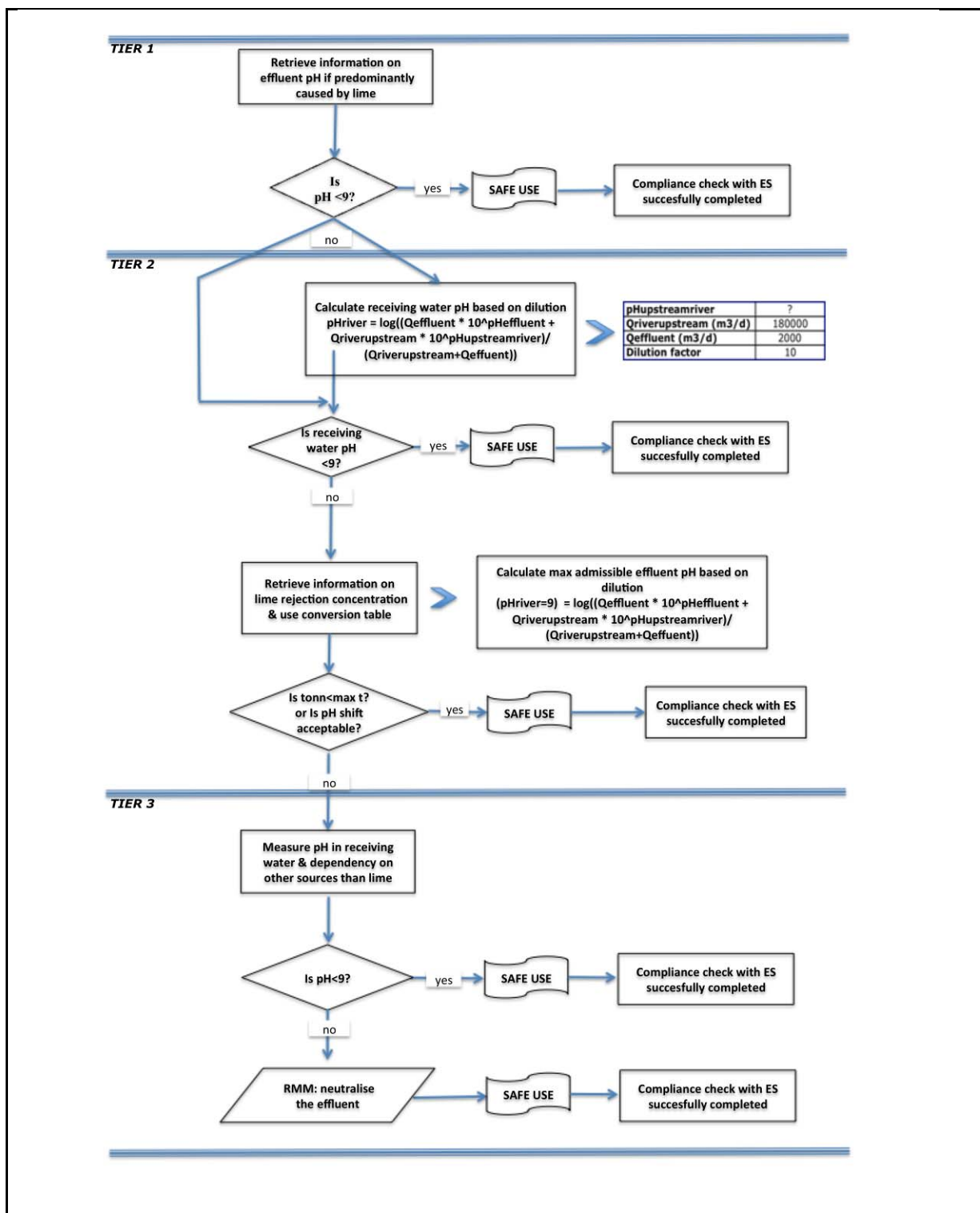
Please note that initially, default values can be used:

- Q river upstream flows: use the 10th of existing measurements distribution or use default value of 18000 m³/day
- Q effluent: use default value of 2000 m³/day
- The upstream pH is preferably a measured value. If not available, one can assume a neutral pH of 7 if this can be justified.

Such equation has to be seen as a worst case scenario, where water conditions are standard and not case specific.

Tier 2b: Equation 1 can be used to identify which effluent pH causes an acceptable pH level in the receiving body. In order to do so, pH of the river is set at value 9 and pH of the effluent is calculated accordingly (using default values as reported previously, if necessary). As temperature influences lime solubility, pH effluent might require to be adjusted on a case-by-case basis. Once the maximum admissible pH value in the effluent is established, it is assumed that the OH⁻ concentrations are all dependent on lime discharge and that there is no buffer capacity conditions to consider (this is a unrealistic worst case scenario, which can be modified where information is available). Maximum load of lime that can be annually rejected without negatively affecting the pH of the receiving water is calculated assuming chemical equilibrium. OH⁻ expressed as moles/litre are multiplied by average flow of the effluent and then divided by the molar mass of the lime substance.

Tier 3: measure the pH in the receiving water after the discharge point. If pH is below 9, safe use is reasonably demonstrated and the ES ends here. If pH is found to be above 9, risk management measures have to be implemented: the effluent has to undergo neutralisation, thus ensuring safe use of lime during production or use phase.



ES number 9.6: Professional uses of aqueous solutions of lime substances

Exposure Scenario Format (1) addressing uses carried out by workers		
1. Title		
Free short title	Professional uses of aqueous solutions of lime substances	
Systematic title based on use descriptor	SU22, SU1, SU5, SU6a, SU6b, SU7, SU10, SU11, SU12, SU13, SU16, SU17, SU18, SU19, SU20, SU23, SU24 PC1, PC2, PC3, PC7, PC8, PC9a, PC9b, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21, PC23, PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31, PC32, PC33, PC34, PC35, PC36, PC37, PC39, PC40 AC1, AC2, AC3, AC4, AC5, AC6, AC7, AC8, AC10, AC11, AC13 (appropriate PROCs and ERCs are given in Section 2 below)	
Processes, tasks and/or activities covered	Processes, tasks and/or activities covered are described in Section 2 below.	
Assessment Method	The assessment of inhalation exposure is based on the exposure estimation tool MEASE. The environmental assessment is based on FOCUS-Exposit.	
2. Operational conditions and risk management measures		
PROC/ERC	REACH definition	Involved tasks
PROC 2	Use in closed, continuous process with occasional controlled exposure	Further information is provided in the ECHA Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (ECHA-2010-G-05-EN).
PROC 3	Use in closed batch process (synthesis or formulation)	
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises	
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
PROC 8b	Transfer of substance or preparation (charging/ discharging) from/to vessels/large containers at dedicated facilities	
PROC 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
PROC 10	Roller application or brushing	
PROC 11	Non industrial spraying	
PROC 12	Use of blowing agents in manufacture of foam	
PROC 13	Treatment of articles by dipping and pouring	
PROC 15	Use as laboratory reagent	
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected	
PROC 17	Lubrication at high energy conditions and in partly open process	
PROC 18	Greasing at high energy conditions	
PROC 19	Hand-mixing with intimate contact and only PPE available	
ERC2, ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f	Wide dispersive indoor and outdoor use of reactive substances or processing aids in open systems	Calcium dihydroxide is applied in numerous cases of wide dispersive uses: agricultural, forestry, fish and shrimps farming, soil treatment and environmental protection.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

2.1 Control of workers exposure

Product characteristic

According to the MEASE approach, the substance-intrinsic emission potential is one of the main exposure determinants. This is reflected by an assignment of a so-called fugacity class in the MEASE tool. For operations conducted with solid substances at ambient temperature the fugacity is based on the dustiness of that substance. Whereas in hot metal operations, fugacity is temperature based, taking into account the process temperature and the melting point of the substance. As a third group, high abrasive tasks are based on the level of abrasion instead of the substance intrinsic emission potential. The spraying of aqueous solutions (PROC7 and 11) is assumed to be involved with a medium emission.

PROC	Use in preparation	Content in preparation	Physical form	Emission potential
All applicable PROCs	not restricted		aqueous solution	very low

Amounts used

The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation (industrial vs. professional) and level of containment/automation (as reflected in the PROC) is the main determinant of the process intrinsic emission potential.

Frequency and duration of use/exposure

PROC	Duration of exposure
PROC 11	≤ 240 minutes
All other applicable PROCs	480 minutes (not restricted)

Human factors not influenced by risk management

The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m³/shift (8 hours).

Other given operational conditions affecting workers exposure

Since aqueous solutions are not used in hot-metallurgical processes, operational conditions (e.g. process temperature and process pressure) are not considered relevant for occupational exposure assessment of the conducted processes.

Technical conditions and measures at process level (source) to prevent release

Risk management measures at the process level (e.g. containment or segregation of the emission source) are generally not required in the processes.

Technical conditions and measures to control dispersion from source towards the worker

PROC	Level of separation	Localised controls (LC)	Efficiency of LC (according to MEASE)	Further information
PROC 19	Separation of workers from the emission source is generally not required in the conducted processes.	not applicable	na	-
All other applicable PROCs		not required	na	-

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure a safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating and smoking at the workplace, the wearing of standard working clothes and shoes unless otherwise stated below. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. Do not blow dust off with compressed air.

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eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Conditions and measures related to personal protection, hygiene and health evaluation				
PROC	Specification of respiratory protective equipment (RPE)	RPE efficiency (assigned protection factor, APF)	Specification of gloves	Further personal protective equipment (PPE)
PROC 11	FFP3 mask	APF=20	Since calcium dihydroxide is classified as irritating to skin, the use of protective gloves is mandatory for all process steps.	Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
PROC 17	FFP1 mask	APF=4		
All other applicable PROCs	not required	na		

Any RPE as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with "duration of exposure" above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker's capability of using tools and of communicating are reduced during the wearing of RPE.

For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scars and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely.

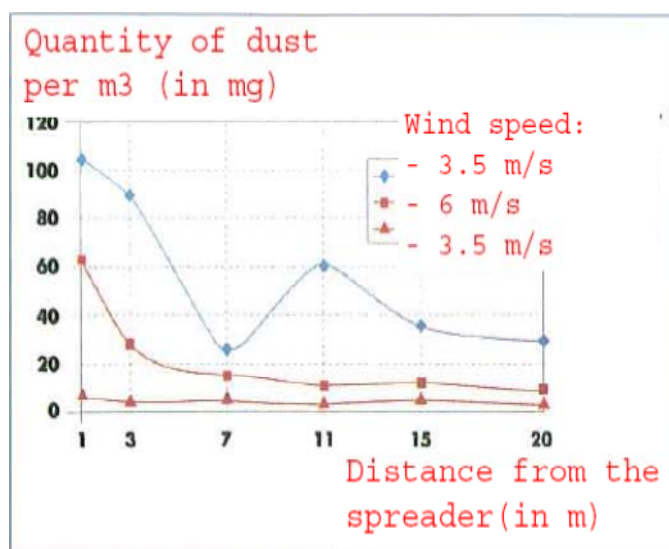
The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers.

An overview of the APFs of different RPE (according to BS EN 529:2005) can be found in the glossary of MEASE.

2.2 Control of environmental exposure – only relevant for agricultural soil protection

Product characteristics

Drift: 1% (very worst-case estimate based on data from dust measurements in air as a function of the distance from application)



(Figure taken from: Laudet, A. et al., 1999)

Amounts used

Ca(OH)₂ 2,244 kg/ha

Frequency and duration of use

1 day/year (one application per year). Multiple applications during the year are allowed, provided the total yearly amount of 2,244 kg/ha is not exceeded (Ca(OH)₂)

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Environment factors not influenced by risk management

Volume of surface water: 300 L/m²
Field surface area: 1 ha

Other given operational conditions affecting environmental exposure

Outdoor use of products
Soil mixing depth: 20 cm

Technical conditions and measures at process level (source) to prevent release

There are no direct releases to adjacent surface waters.

Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil

Drift should be minimised.

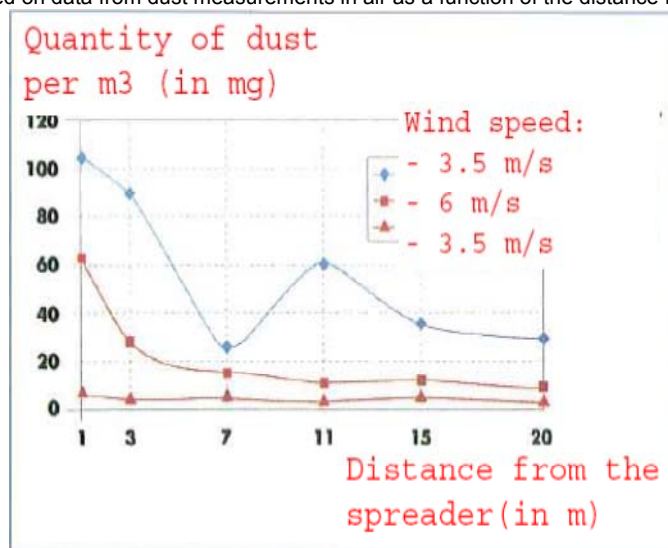
Organizational measures to prevent/limit release from site

In line with the requirements for good agricultural practice, agricultural soil should be analysed prior to application of lime and the application rate should be adjusted according to the results of the analysis.

2.2 Control of environmental exposure – only relevant for soil treatment in civil engineering

Product characteristics

Drift: 1% (very worst-case estimate based on data from dust measurements in air as a function of the distance from application)



(Figure taken from: Laudet, A. et al., 1999)

Amounts used

Ca(OH)₂ 238,208 kg/ha

Frequency and duration of use

1 day/year and only once in a lifetime. Multiple applications during the year are allowed, provided the total yearly amount of 238,208 kg/ha is not exceeded (Ca(OH)₂)

Environment factors not influenced by risk management

Field surface area: 1 ha

Other given operational conditions affecting environmental exposure

Outdoor use of products
Soil mixing depth: 20 cm

Technical conditions and measures at process level (source) to prevent release

Lime is only applied onto the soil in the technosphere zone before road construction. There are no direct releases to adjacent surface waters.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil				
Drift should be minimised.				
3. Exposure estimation and reference to its source				
Occupational exposure				
The exposure estimation tool MEASE was used for the assessment of inhalation exposure. The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and has to be below 1 to demonstrate a safe use. For inhalation exposure, the RCR is based on the DNEL for calcium dihydroxide of 1 mg/m ³ (as respirable dust) and the respective inhalation exposure estimate derived using MEASE (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction being a sub-fraction of the inhalable fraction according to EN 481.				
PROC	Method used for inhalation exposure assessment	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
PROC 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19	MEASE	< 1 mg/m ³ (<0.001 – 0.6)	Since calcium dihydroxide is classified as irritating to skin, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Environmental exposure for agricultural soil protection				
The PEC calculation for soil and surface water was based on the FOCUS soil group (FOCUS, 1996) and on the "draft guidance on the calculation of predicted environmental concentration values (PEC) of plant protection products for soil, ground water, surface water and sediment (Kloskowski et al., 1999). The FOCUS/EXPOSIT modelling tool is preferred to the EUSES as it is more appropriate for agricultural-like application as in this case where parameter as the drift needs to be included in the modelling. FOCUS is a model typically developed for biocidal applications and was further elaborated on the basis of the German EXPOSIT 1.0 model, where parameters such as drifts can be improved according to collected data: once applied on the soil, calcium dihydroxide can indeed migrate then towards surface waters, via drift.				
Environmental emissions	See amounts used			
Exposure concentration in waste water treatment plant (WWTP)	Not relevant for agricultural soil protection			
Exposure concentration in aquatic pelagic compartment	Substance	PEC (ug/L)	PNEC (ug/L)	RCR
	Ca(OH) ₂	7.48	490	0.015
Exposure concentration in sediments	As described above, no exposure of surface water nor sediment to lime is expected. Further, in natural waters the hydroxide ions react with HCO ₃ ⁻ to form water and CO ₃ ²⁻ . CO ₃ ²⁻ forms CaCO ₃ by reacting with Ca ²⁺ . The calcium carbonate precipitates and deposits on the sediment. Calcium carbonate is of low solubility and a constituent of natural soils.			
Exposure concentrations in soil and groundwater	Substance	PEC (mg/L)	PNEC (mg/L)	RCR
	Ca(OH) ₂	660	1080	0.61
Exposure concentration in atmospheric compartment	This point is not relevant. Calcium dihydroxide is not volatile. The vapour pressures is below 10 ⁻⁵ Pa.			
Exposure concentration relevant for the food chain (secondary poisoning)	This point is not relevant because calcium dihydroxides can be considered to be omnipresent and essential in the environment. The uses covered do not significantly influence the distribution of the constituents (Ca ²⁺ and OH ⁻) in the environment.			

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Environmental exposure for soil treatment in civil engineering

The soil treatment in civil engineering scenario is based on a road border scenario. At the special road border technical meeting (Ispra, September 5, 2003), EU Member States and industry agreed on a definition for a "road technosphere". The road technosphere can be defined as "the engineered environment that carries the geotechnical functions of the road in connection with its structure, operation and maintenance including the installations to ensure road safety and manage run off. This technosphere, which includes the hard and soft shoulder at the edge of the carriageway, is vertically dictated by the groundwater watertable. The road authority has responsibility for this road technosphere including road safety, road support, prevention of pollution and water management". The road technosphere was therefore excluded as assessment endpoint for risk assessment for the purpose of the existing/new substances regulations. The target zone is the zone beyond the technosphere, to which the environmental risk assessment applies.

The PEC calculation for soil was based on the FOCUS soil group (FOCUS, 1996) and on the "draft guidance on the calculation of predicted environmental concentration values (PEC) of plant protection products for soil, ground water, surface water and sediment (Kloskowski et al., 1999). The FOCUS/EXPOSIT modelling tool is preferred to the EUSES as it is more appropriate for agricultural-like application as in this case where parameter as the drift needs to be included in the modelling. FOCUS is a model typically developed for biocidal applications and was further elaborated on the basis of the German EXPOSIT 1.0 model, where parameters such as drifts can be improved according to collected data.

Environmental emissions	See amounts used			
Exposure concentration in waste water treatment plant (WWTP)	Not relevant for road border scenario			
Exposure concentration in aquatic pelagic compartment	Not relevant for road border scenario			
Exposure concentration in sediments	Not relevant for road border scenario			
Exposure concentrations in soil and groundwater	Substance	PEC (mg/L)	PNEC (mg/L)	RCR
	Ca(OH) ₂	701	1080	0.65
Exposure concentration in atmospheric compartment	This point is not relevant. Calcium dihydroxide is not volatile. The vapour pressures is below 10 ⁻⁵ Pa.			
Exposure concentration relevant for the food chain (secondary poisoning)	This point is not relevant because calcium can be considered to be omnipresent and essential in the environment. The uses covered do not significantly influence the distribution of the constituents (Ca ²⁺ and OH ⁻) in the environment.			

Environmental exposure for other uses

For all other uses, no quantitative environmental exposure assessment is carried because

- The operational conditions and risk management measures are less stringent than those outlined for agricultural soil protection or soil treatment in civil engineering
- Lime is an ingredient and chemically bound into a matrix. Releases are negligible and insufficient to cause a pH-shift in soil, wastewater or surface water
- Lime is specifically used to release CO₂-free breathable air, upon reaction with CO₂. Such applications only relates to the air compartment, where the lime properties are exploited
- Neutralisation/pH-shift is the intended use and there are no additional impacts beyond those desired.

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below. If measured data are not available, the DU may make use of an appropriate scaling tool such as MEASE (www.ebrc.de/mease.html) to estimate the associated exposure. The dustiness of the substance used can be determined according to the MEASE glossary. For example, substances with a dustiness less than 2.5 % according to the Rotating Drum Method (RDM) are defined as "low dusty", substances with a dustiness less than 10 % (RDM) are defined as "medium dusty" and substances with a dustiness ≥ 10 % are defined as "high dusty".

DNEL_{inhalation}: 1 mg/m³ (as respirable dust)

Important note: The DU has to be aware of the fact that apart from the long-term DNEL given above, a DNEL for acute effects exists at a level of 4 mg/m³. By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2). When using MEASE for the derivation of exposure estimates, it is noted that the exposure duration should only be reduced to half-shift as a risk management measure (leading to an exposure reduction of 40 %).

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

ES number 9.15: Consumer use of lime substances as water treatment chemicals

Exposure Scenario Format (2) addressing uses carried out by consumers

1. Title

Free short title	Consumer use of lime substances as water treatment chemicals
Systematic title based on use descriptor	SU21, PC20, PC37, ERC8b
Processes, tasks activities covered	Loading, filling or re-filling of solid formulations into container/preparation of lime milk Application of lime milk to water
Assessment Method*	Human health: A qualitative assessment has been performed for oral and dermal exposure as well as for exposure of the eye. Dust exposure has been assessed by the Dutch model (van Hemmen, 1992). Environment: A qualitative justification assessment is provided.

2. Operational conditions and risk management measures

RMM	No further product integrated risk management measures are in place.
PC/ERC	Description of activity referring to article categories (AC) and environmental release categories (ERC)
PC 20/37	Filling and re-filling (transfer of lime substances (solid)) of lime reactor for water treatment. Transfer of lime substances (solid) into container for further application. Dropwise application of lime milk to water.
ERC 8b	Wide dispersive indoor use of reactive substances in open systems

2.1 Control of consumers exposure

Product characteristic

Description of the preparation	Concentration of the substance in the preparation	Physical state of the preparation	Dustiness (if relevant)	Packaging design
Water treatment chemical	Up to 100 %	Solid, fine powder	high dustiness (indicative value from DIY fact sheet see section 9.0.3)	Bulk in bags or buckets/containers.
Water treatment chemical	Up to 99 %	Solid, granular of different size (D50 value 0.7 D50 value 1.75 D50 value 3.08)	low dustiness (reduction by 10% compared to powder)	Bulk-tank lorry or in „Big Bags“ or in sacks

Amounts used

Description of the preparation	Amount used per event
Water treatment chemical in lime reactor for aquaria	depending on the size of the water reactor to be filled (~ 100g / L)
Water treatment chemical in lime reactor for drinking water	depending on the size of the water reactor to be filled (~up to 1.2 kg/L)
Lime milk for further application	~ 20 g / 5L

Frequency and duration of use/exposure

Description of task	Duration of exposure per event	frequency of events
Preparation of lime milk (loading, filling and refilling)	1.33 min (DIY-fact sheet, RIVM, Chapter 2.4.2 Mixing and loading of powders)	1 task/month 1task/week
Dropwise application of lime milk to water	Several minutes - hours	1 tasks/ month

Human factors not influenced by risk management

Description of the task	Population exposed	Breathing rate	Exposed body part	Corresponding skin area [cm²]
Preparation of lime milk (loading, filling and refilling)	adult	1.25 m³/hr	Half of both hands	430 (RIVM report 320104007)
Dropwise application of lime milk to water	adult	NR	Hands	860 (RIVM report 320104007)

Other given operational conditions affecting consumers exposure

Description of the task	Indoor/outdoor	Room volume	Air exchange rate
Preparation of lime milk (loading, filling and refilling)	Indoor/outdoor	1 m³ (personal space, small area around the user)	0.6 hr ⁻¹ (unspecified room indoor)

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Dropwise application of lime milk to water	indoor	NR	NR
Conditions and measures related to information and behavioural advice to consumers			
Do not get in eyes, on skin, or on clothing. Do not breathe dust Keep container closed and out of reach of children. Use only with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wash thoroughly after handling. Do not mix with acids and always add limes to water and not water to limes.			
Conditions and measures related to personal protection and hygiene			
Wear suitable gloves, goggles and protective clothes. Use a filtering half mask (mask type FFP2 acc. to EN 149).			
2.2 Control of environmental exposure			
Product characteristics			
Not relevant for exposure assessment			
Amounts used*			
Not relevant for exposure assessment			
Frequency and duration of use			
Not relevant for exposure assessment			
Environment factors not influenced by risk management			
Default river flow and dilution			
Other given operational conditions affecting environmental exposure			
Indoor			
Conditions and measures related to municipal sewage treatment plant			
Default size of municipal sewage system/treatment plant and sludge treatment technique			
Conditions and measures related to external treatment of waste for disposal			
Not relevant for exposure assessment			
Conditions and measures related to external recovery of waste			
Not relevant for exposure assessment			
3. Exposure estimation and reference to its source			
The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and is given in parentheses below. For inhalation exposure, the RCR is based on the acute DNEL for lime substances of 4 mg/m ³ (as respirable dust) and the respective inhalation exposure estimate (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction is a sub-fraction of the inhalable fraction according to EN 481. Since lime substances are classified as irritating to skin and eyes a qualitative assessment has been performed for dermal exposure and exposure to the eye.			
Human exposure			
Preparation of lime milk (loading)			
Route of exposure	Exposure estimate	Method used, comments	
Oral	-	Qualitative assessment Oral exposure does not occur as part of the intended product use.	
Dermal (powder)	small task: 0.1 µg/cm² (-) large task: 1 µg/cm² (-)	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, dermal contact to dust from loading of limes or direct contact to the lime cannot be excluded if no protective gloves are worn during application. This may occasionally result in mild irritation easily avoided by prompt rinsing with water. Quantitative assessment The constant rate model of ConsExpo has been used. The contact rate to dust formed while pouring powder has been taken from the DIY-fact sheet (RIVM report 320104007). For granules the exposure estimate will be even lower.	
Eye	Dust	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. Dust from loading of the limes cannot be excluded if no protective goggles are used. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.	
Inhalation (powder)	Small task: 12 µg/m³ (0.003) Large task: 120 µg/m³ (0.03)	Quantitative assessment Dust formation while pouring the powder is addressed by using the Dutch model (van Hemmen, 1992, as described in section 9.0.3.1 above).	
Inhalation (granules)	Small task: 1.2 µg/m³ (0.0003) Large task: 12 µg/m³ (0.003)	Quantitative assessment Dust formation while pouring the powder is addressed by using the Dutch model (van Hemmen, 1992 as described in section 9.0.3.1 above) and applying a dust reduction factor of 10 for the granular form.	
Dropwise application of lime milk to water			

Created: 01.07.2018

eSDS_KM_e_2_1

Version: 2.1

Replaced Version of 01.01.2016

Route of exposure	Exposure estimate	Method used, comments
Oral	-	Qualitative assessment Oral exposure does not occur as part of the intended product use.
Dermal	Droplets or splashes	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, splashes on the skin cannot be excluded if no protective gloves are worn during application. Splashes may occasionally result in mild irritation easily avoided by immediate rinsing of the hands in water.
Eye	Droplets or splashes	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, splashes into the eyes cannot be excluded if no protective goggles are worn during the application. However, it is rare for eye irritation to occur as a result of exposure to a clear solution of calcium hydroxide (lime water) and mild irritation can easily be avoided by immediate rinsing of the eyes with water.
Inhalation	-	Qualitative assessment Not expected, as the vapour pressure of limes in water is low and generation of mists or aerosols does not take place.
Environmental exposure		
The pH impact due to use of lime in cosmetics is expected to be negligible. The influent of a municipal wastewater treatment plant is often neutralized anyway and lime may even be used beneficially for pH control of acid wastewater streams that are treated in biological WWTPs. Since the pH of the influent of the municipal treatment plant is circum neutral, the pH impact is negligible on the receiving environmental compartments, such as surface water, sediment and terrestrial compartment.		

End of the safety data sheet

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: **9681**

Version: **6.0 en**

Replaces version of: 25.08.2020

Version: (5)

date of compilation: 19.05.2015

Revision: 09.09.2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance	Hydrogen peroxide 30 %, Ph.Eur., stabilized
Article number	9681
Registration number (REACH)	not relevant (mixture)
Index number in CLP Annex VI	[008-003-00-9]
EC number	[231-765-0]
CAS number	[7722-84-1]

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:	Laboratory chemical Laboratory and analytical use
Uses advised against:	Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.10	Acute toxicity (oral)	4	Acute Tox. 4	H302
3.11	Acute toxicity (inhal.)	4	Acute Tox. 4	H332
3.3	Serious eye damage/eye irritation	1	Eye Dam. 1	H318

For full text of abbreviations: see SECTION 16

2.2 Label elements

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms

GHS05, GHS07



Hazard statements

H302+H332
H318

Harmful if swallowed or if inhaled
Causes serious eye damage

Precautionary statements

Precautionary statements - prevention

P280 Wear protective gloves/protective clothing/eye protection/face protection

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of water
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 Immediately call a POISON CENTER/doctor

Hazardous ingredients for labelling: Hydrogen peroxide solution ... %

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H318 Causes serious eye damage.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

contains: Hydrogen peroxide solution ... %

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

Molar mass

34,01 g/mol

3.2 Mixtures

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Description of the mixture

Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Hydrogen peroxide solution ... %	CAS No 7722-84-1 EC No 231-765-0 Index No 008-003-00-9 REACH Reg. No 01-2119485845- 22-xxxx	> 25 - < 35	Ox. Liq. 1 / H271 Acute Tox. 4 / H302 Acute Tox. 4 / H332 Skin Corr. 1A / H314 Eye Dam. 1 / H318 STOT SE 3 / H335 Aquatic Chronic 3 / H412		B(a) GHS-HC

Notes

B(a): The classification refers to an aqueous solution

GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)

Name of sub-stance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
Hydrogen peroxide solution ... %	CAS No 7722-84-1 EC No 231-765-0 Index No 008-003-00-9	Ox. Liq. 1; H271: $C \geq 70 \%$ Ox. Liq. 2; H272: $50 \% \leq C < 70 \%$ Skin Corr. 1A; H314: $C \geq 70 \%$ Skin Corr. 1B; H314: $50 \% \leq C < 70 \%$ Skin Irrit. 2; H315: $35 \% \leq C < 50 \%$ Eye Dam. 1; H318: $C \geq 8 \%$ Eye Irrit. 2; H319: $5 \% \leq C < 8 \%$ STOT SE 3; H335: $C \geq 35 \%$	-	500 mg/kg 11 mg/l/4h	oral inhalation; va- pour

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes hold-
ing eyelids apart and consult an ophthalmologist.

Following ingestion

Rinse mouth with water (only if the person is conscious). Call a doctor.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation: Cough, Dyspnoea,
Following skin contact: Irritant effects,
After eye contact: Conjunctivitis (pink eye), Risk of serious damage to eyes, Risk of blindness,
Following ingestion: Nausea, Vomiting, Diarrhoea, Vertigo, Spasms, Unconsciousness

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, foam, dry extinguishing powder

Unsuitable extinguishing media

water jet, carbon dioxide (CO₂)

5.2 Special hazards arising from the substance or mixture

Oxidising property. The product itself does not burn.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures are necessary.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container. Protect from sunlight. May cause decomposition by long-term light influence.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted.

Specific designs for storage rooms or vessels

Do not keep the container sealed.

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Hydrogen peroxide solution ... %	7722-84-1	DNEL	1,4 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
Hydrogen peroxide solution ... %	7722-84-1	DNEL	3 mg/m ³	human, inhalatory	worker (industry)	acute - local effects

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Relevant PNECs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Hydrogen peroxide solution ... %	7722-84-1	PNEC	0,0138 mg/l	aquatic organisms	water	intermittent release
Hydrogen peroxide solution ... %	7722-84-1	PNEC	0,013 mg/l	aquatic organisms	freshwater	short-term (single instance)
Hydrogen peroxide solution ... %	7722-84-1	PNEC	0,013 mg/l	aquatic organisms	marine water	short-term (single instance)
Hydrogen peroxide solution ... %	7722-84-1	PNEC	4,66 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Hydrogen peroxide solution ... %	7722-84-1	PNEC	0,047 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Hydrogen peroxide solution ... %	7722-84-1	PNEC	0,047 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Hydrogen peroxide solution ... %	7722-84-1	PNEC	0,002 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

≥0,3 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



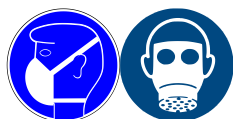
Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: B-P2 (combined filters for acidic gases and particles, colour code: Grey/White). Type: ABEK (combined filters against gases and vapours, colour code: Brown/Grey/Yellow/Green).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	faintly perceptible
Melting point/freezing point	-26 °C
Boiling point or initial boiling point and boiling range	107 °C
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not determined
Decomposition temperature	>100 °C
pH (value)	2 – 4 (20 °C)
Kinematic viscosity	0,973 mm ² /s at 20 °C
<u>Solubility(ies)</u>	
Water solubility	miscible in any proportion
<u>Partition coefficient</u>	
Partition coefficient n-octanol/water (log value):	-1,57 (calc.) not relevant (inorganic)
Vapour pressure	18 hPa at 20 °C
Density	1,11 g/cm ³
Relative vapour density	1,2 (air = 1)

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Particle characteristics	not relevant (liquid)
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Other safety parameters

Oxidising properties	none
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9.2 Other information

Information with regard to physical hazard classes:	hazard classes acc. to GHS (physical hazards): not relevant
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Other safety characteristics:

Miscibility	completely miscible with water
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SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

May cause decomposition by long-term light influence.

10.3 Possibility of hazardous reactions

Violent reaction with: Acetone, Aldehydes, Alkalis, Alkali hydroxide (caustic alkali), Alkali metals, Alcohols, Amines, Ammonia (NH₃), Aniline, Lead, Lead oxide, Alkaline earth metal, Acetic acid, Acetic anhydride, Ether, Hydrazine, Metals, Metal powder, Sodium, Organic substances, Permanganates, Phosphorus, Phosphorus oxides (e.g. P₂O₅), Reducing agents, Nitric acid, Sulphuric acid, Heavy metals, => Explosive properties

10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: >100 °C. Keep away from heat.

10.5 Incompatible materials

lead, iron, copper, bronze, brass, silver, zinc, chromium

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Harmful if swallowed. Harmful if inhaled.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Hydrogen peroxide solution ... %	7722-84-1	oral	500 mg/kg
Hydrogen peroxide solution ... %	7722-84-1	inhalation: vapour	11 mg/l/4h

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Hydrogen peroxide solution ... %	7722-84-1	oral	LD50	693,7 mg/kg	rat
Hydrogen peroxide solution ... %	7722-84-1	oral	LD50	1.026 mg/kg	rat
Hydrogen peroxide solution ... %	7722-84-1	dermal	LD50	>2.000 mg/kg	rabbit

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

diarrhoea, vomiting, abdominal pain, nausea

• If in eyes

conjunctivitis (pink eye), Causes serious eye damage, risk of blindness

• If inhaled

cough, Dyspnoea

• If on skin

irritant effects

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

• Other information

Other adverse effects: Headache, Spasms, Vertigo, Unconsciousness

11.2 Endocrine disrupting properties

None of the ingredients are listed.

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture

Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Hydrogen peroxide solution ... %	7722-84-1	LC50	16,4 mg/l	fish	96 h
Hydrogen peroxide solution ... %	7722-84-1	ErC50	1,38 mg/l	algae	72 h

Aquatic toxicity (chronic) of components of the mixture

Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Hydrogen peroxide solution ... %	7722-84-1	EC50	466 mg/l	microorganisms	30 min

Biodegradation

The methods for determining the biological degradability are not applicable to inorganic substances.

12.2 Process of degradability

Data are not available.

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

12.7 Other adverse effects

Data are not available.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagegings

It is a dangerous waste; only packagegings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Waste catalogue ordinance (Germany).

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN	UN 2014
IMDG-Code	UN 2014
ICAO-TI	UN 2014

14.2 UN proper shipping name

ADR/RID/ADN	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
IMDG-Code	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
ICAO-TI	Hydrogen peroxide, aqueous solution

14.3 Transport hazard class(es)

ADR/RID/ADN	5.1 (8)
IMDG-Code	5.1 (8)
ICAO-TI	5.1 (8)

14.4 Packing group

ADR/RID/ADN	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized



article number: 9681

14.7 Maritime transport in bulk according to IMO instruments



The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Particulars in the transport document	UN2014, HYDROGEN PEROXIDE, AQUEOUS SOLUTION, stabilized, 5.1 (8), II, (E)
Classification code	OC1
Danger label(s)	5.1+8
 	
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	58

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Particulars in the shipper's declaration	UN2014, HYDROGEN PEROXIDE, AQUEOUS SOLUTION, stabilized, 5.1 (8), II
Marine pollutant	-
Danger label(s)	5.1+8
 	
Special provisions (SP)	-
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-H, S-Q
Stowage category	D
Segregation group	16 - Peroxides

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Proper shipping name	Hydrogen peroxide, aqueous solution
Particulars in the shipper's declaration	UN2014, Hydrogen peroxide, aqueous solution, stabilized, 5.1 (8), II
Danger label(s)	5.1+8



Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Excepted quantities (EQ)

E2

Limited quantities (LQ)

0,5 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Dangerous substances with restrictions (REACH, Annex XVII)				
Name of substance	Name acc. to inventory	CAS No	Restriction	No
Hydrogen peroxide	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		R3	3
Hydrogen peroxide solution ... %	substances in tattoo inks and permanent make-up		R75	75

Legend

- R3
1. Shall not be used in:
 - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
 - tricks and jokes,
 - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
 2. Articles not complying with paragraph 1 shall not be placed on the market.
 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
 - can be used as fuel in decorative oil lamps for supply to the general public, and
 - present an aspiration hazard and are labelled with H304.
 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
 5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
 - (a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
 - (b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter fluid may lead to life threatening lung damage";
 - (c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;

Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Legend

- R75
1. Shall not be placed on the market in mixtures for use for tattooing purposes, and mixtures containing any such substances shall not be used for tattooing purposes, after 4 January 2022 if the substance or substances in question is or are present in the following circumstances:
 - (a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (b) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as reproductive toxicant category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (c) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin sensitiser category 1, 1A or 1B, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2, or as serious eye damage category 1 or eye irritant category 2, the substance is present in the mixture in a concentration equal to or greater than:
 - (i) 0,1 % by weight, if the substance is used solely as a pH regulator;
 - (ii) 0,01 % by weight, in all other cases;
 - (e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (*1), the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (f) in the case of a substance for which a condition of one or more of the following kinds is specified in column g (Product type, Body parts) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight:
 - (i) "Rinse-off products";
 - (ii) "Not to be used in products applied on mucous membranes";
 - (iii) "Not to be used in eye products";
 - (g) in the case of a substance for which a condition is specified in column h (Maximum concentration in ready for use preparation) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration, or in some other way, that does not accord with the condition specified in that column;
 - (h) in the case of a substance listed in Appendix 13 to this Annex, the substance is present in the mixture in a concentration equal to or greater than the concentration limit specified for that substance in that Appendix.
 2. For the purposes of this entry use of a mixture "for tattooing purposes" means injection or introduction of the mixture into a person's skin, mucous membrane or eyeball, by any process or procedure (including procedures commonly referred to as permanent make-up, cosmetic tattooing, micro-blading and micro-pigmentation), with the aim of making a mark or design on his or her body.
 3. If a substance not listed in Appendix 13 falls within more than one of points (a) to (g) of paragraph 1, the strictest concentration limit laid down in the points in question shall apply to that substance. If a substance listed in Appendix 13 also falls within one or more of points (a) to (g) of paragraph 1, the concentration limit laid down in point (h) of paragraph 1 shall apply to that substance.
 4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:
 - (a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);
 - (b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).
 5. If Part 3 of Annex VI to Regulation (EC) No 1272/2008 is amended after 4 January 2021 to classify or re-classify a substance such that the substance then becomes caught by point (a), (b), (c) or (d) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect on the date of application of that new or revised classification.
 6. If Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 to list or change the listing of a substance such that the substance then becomes caught by point (e), (f) or (g) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the amendment takes effect after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect from the date falling 18 months after entry into force of the act by which that amendment was made.
 7. Suppliers placing a mixture on the market for use for tattooing purposes shall ensure that, after 4 January 2022, the mixture is marked with the following information:
 - (a) the statement "Mixture for use in tattoos or permanent make-up";
 - (b) a reference number to uniquely identify the batch;
 - (c) the list of ingredients in accordance with the nomenclature established in the glossary of common ingredient names pursuant to Article 33 of Regulation (EC) No 1223/2009, or in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC name, the CAS and EC number. Ingredients shall be listed in descending order by weight or volume of the ingredients at the time of formulation. "Ingredient" means any substance added during the process of formulation and present in the mixture for use for tattooing purposes. Impurities shall not be regarded as ingredients. If the name of a substance, used as ingredient within the meaning of this entry, is already required to be stated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient does not need to be marked in accordance with this Regulation;
 - (d) the additional statement "pH regulator" for substances falling under point (d)(i) of paragraph 1;
 - (e) the statement "Contains nickel. Can cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;
 - (f) the statement "Contains chromium (VI). Can cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;
 - (g) safety instructions for use insofar as they are not already required to be stated on the label by Regulation (EC) No 1272/2008.
- The information shall be clearly visible, easily legible and marked in a way that is indelible.
 The information shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.
 Where necessary because of the size of the package, the information listed in the first subparagraph, except for point (a), shall be included instead in the instructions for use.
 Before using a mixture for tattooing purposes, the person using the mixture shall provide the person undergoing the procedure with the information marked on the package or included in the instructions for use pursuant to this paragraph.
8. Mixtures that do not contain the statement "Mixture for use in tattoos or permanent make-up" shall not be used for tattooing purposes.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Legend

9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).

10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

None of the ingredients are listed. (Or Concentration of the substance in a mixture: <0.1 % Mass concentration)

Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

Deco-Paint Directive

VOC content	0 %
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Industrial Emissions Directive (IED)

VOC content	0 %
-------------	-----

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Hydrogen peroxide solution ... %	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment		A)	

Legend

A) Indicative list of the main pollutants

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Regulation on the marketing and use of explosives precursors

Explosives precursors which are subject to restrictions					
Name of substance	CAS No	Type of registration	Remarks	Limit value	Upper limit value for the purpose of licensing under Article 5(3)
Hydrogen peroxide solution ... %	7722-84-1	Annex I		12 % w/w	35 % w/w

Legend

annex I Substances which shall not be made available to members of the general public on their own, or in mixtures or substances including them, except if the concentration is equal to or lower than the limit values set out below

Regulation on drug precursors

none of the ingredients are listed

Regulation on substances that deplete the ozone layer (ODS)

none of the ingredients are listed

Regulation concerning the export and import of hazardous chemicals (PIC)

none of the ingredients are listed

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AICS	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSC	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Alignment to regulation: Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU

Restructuring: section 9, section 14

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.1		Classification according to Regulation (EC) No 1272/2008 (CLP): change in the listing (table)	yes
2.3	Other hazards: There is no additional information.	Other hazards	yes
2.3		Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Abbr.	Descriptions of used abbreviations
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NLP	No-Longer Polymer
Ox. Liq.	Oxidising liquid
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STOT SE	Specific target organ toxicity - single exposure
SVHC	Substance of Very High Concern
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Hydrogen peroxide 30 %, Ph.Eur., stabilized

article number: 9681

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture.
Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H271	May cause fire or explosion; strong oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: **9277**

Version: **GHS 5.1 en**

Replaces version of: 2022-07-19

Version: (GHS 5)

date of compilation: 2017-04-07

Revision: 2022-10-06

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance **Hydrochloric acid 37 %, fuming, extra pure**

Article number **9277**

CAS number **[7647-01-0]**

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Laboratory chemical
Laboratory and analytical use

Uses advised against: Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 Westmead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
2.16	Substance or mixture corrosive to metals	1	Met. Corr. 1	H290
3.2	Skin corrosion/irritation	1	Skin Corr. 1	H314
3.3	Serious eye damage/eye irritation	1	Eye Dam. 1	H318

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.8R	Specific target organ toxicity - single exposure (respiratory tract irritation)	3	STOT SE 3	H335

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

2.2 Label elements

Labelling

Signal word

Danger

Pictograms

GHS05, GHS07



Hazard statements

H290 May be corrosive to metals
H314 Causes severe skin burns and eye damage
H335 May cause respiratory irritation

Precautionary statements

Precautionary statements - prevention

P260 Do not breathe dusts or mists
P280 Wear eye protection/face protection

Precautionary statements - response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P390 Absorb spillage to prevent material damage

Precautionary statements - storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed

Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant

Hazardous ingredients for labelling: Hydrochloric acid %

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.



SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Hydrochloric acid %	CAS No 7647-01-0	> 32 – 37	Met. Corr. 1 / H290 Skin Corr. 1 / H314 Eye Dam. 1 / H318 STOT SE 3 / H335	 	B(a)

Notes

B(a): The classification refers to an aqueous solution

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

4.2 Most important symptoms and effects, both acute and delayed

Corrosion, Risk of blindness, Gastric perforation, Risk of serious damage to eyes, Irritation, Cough, Dyspnoea

4.3 Indication of any immediate medical attention and special treatment needed

none

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use extractor hood (laboratory). When diluting/dissolving, always have the water ready first, then slowly stir in the product. Handle and open container with care. Provision of sufficient ventilation. Clear contaminated areas thoroughly.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Keep only in original container.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Cou ntr y	Name of agent	CAS No	Identi- fier	TW A [pp m]	TWA [mg/ m ³]	STE L [pp m]	STEL [mg/ m ³]	Ceil- ing- C [pp m]	Ceil- ing-C [mg/ m ³]	Nota- tion	Source
AU	hydrogen chloride (hydrochloric acid)	7647-01-0	WES					5	7.5		WES

Notation

Ceiling-C
STEL

Ceiling value is a limit value above which exposure should not occur

Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA

Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture

Name of sub- stance	CAS No	End- point	Threshol d level	Protection goal, route of exposure	Used in	Exposure time
Hydrochloric acid %	7647-01-0	DNEL	8 mg/m ³	human, inhalat- ory	worker (industry)	chronic - local ef- fects
Hydrochloric acid %	7647-01-0	DNEL	15 mg/m ³	human, inhalat- ory	worker (industry)	acute - local ef- fects

Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection. Wear face protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,3 mm

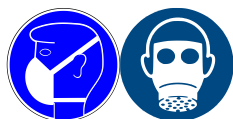
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: E (against acidic gases like sulphur dioxide or hydrogen chloride, colour code: Yellow).

Environmental exposure controls

Keep away from drains, surface and ground water.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless - light yellow
Odour	stinging
Melting point/freezing point	-30 °C
Boiling point or initial boiling point and boiling range	not determined
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	<1 (20 °C)
Kinematic viscosity	not determined
Dynamic viscosity	2.3 mPa s at 15 °C
<u>Solubility(ies)</u>	
Water solubility	miscible in any proportion
<u>Partition coefficient</u>	
Partition coefficient n-octanol/water (log value):	not relevant (inorganic)
Vapour pressure	190 hPa at 20 °C
<u>Density and/or relative density</u>	
Density	1.19 g/cm ³ at 20 °C
Relative vapour density	information on this property is not available
Particle characteristics	not relevant (liquid)
<u>Other safety parameters</u>	
Oxidising properties	none

9.2 Other information

Information with regard to physical hazard classes:	
Corrosive to metals	category 1: corrosive to metals
Other safety characteristics:	

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

Miscibility

completely miscible with water

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Dangerous/dangerous reactions with: strong oxidiser, Aldehydes, Aluminium, Amines, Carbide, Fluorine, Metals, Permanganates, Strong alkali,

Danger of explosion: Alkali metals, Sulphuric acid, concentrated

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

different metals

Release of flammable materials with

Metals, Light metals (due to the release of hydrogen in an acid/alkaline medium)

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)

• If in eyes

causes burns, Causes serious eye damage, risk of blindness

• If inhaled

Irritation to respiratory tract, cough, Dyspnoea, pulmonary oedema

• If on skin

causes severe burns, causes poorly healing wounds

• Other information

Other adverse effects: Circulatory collapse, Cardiac arrhythmias, Symptoms can occur only after several hours

11.2 Endocrine disrupting properties

None of the ingredients are listed.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Biodegradation

The methods for determining the biological degradability are not applicable to inorganic substances.

12.2 Process of degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H8 Corrosives
H11 Toxic (Delayed or chronic)

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number

UN RTDG	UN 1789
IMDG-Code	UN 1789
ICAO-TI	UN 1789

14.2 UN proper shipping name

UN RTDG	HYDROCHLORIC ACID
IMDG-Code	HYDROCHLORIC ACID
ICAO-TI	Hydrochloric acid

14.3 Transport hazard class(es)

UN RTDG	8
IMDG-Code	8
ICAO-TI	8

14.4 Packing group

UN RTDG	II
IMDG-Code	II
ICAO-TI	II

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

14.5 Environmental hazards non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user
There is no additional information.

14.7 Transport in bulk according to IMO instruments
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport informationNational regulationsAdditional information(UN RTDG)

UN number 1789

Class 8

Packing group II

Danger label(s) 8



Special provisions (SP) -
UN RTDG

Excepted quantities (EQ) E2
UN RTDG

Limited quantities (LQ) 1 L
UN RTDG

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name HYDROCHLORIC ACID

Particulars in the shipper's declaration UN1789, HYDROCHLORIC ACID, 8, II

Marine pollutant -

Danger label(s) 8



Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

EmS F-A, S-B

Stowage category C

Segregation group 1 - Acids

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Proper shipping name Hydrochloric acid

Particulars in the shipper's declaration UN1789, Hydrochloric acid, 8, II

Danger label(s) 8



Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

Special provisions (SP)	A3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	0,5 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

All ingredients are listed or exempt from listing.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances

Name of substance	CAS No	Listed in	HS code
Hydrochloric acid %	7647-01-0	Table II	2806.10

National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

Legend

TSCA Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Alignment to regulation: Globally Harmonized System of Classification and Labelling of Chemicals ("Purple book").

Restructuring: section 9, section 14

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.2		Precautionary statements - response: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
HS	Harmonized Commodity Description and Coding System (Harmonized System, drawn up by the World Customs Organisation)
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
Met. Corr.	Substance or mixture corrosive to metals
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Hydrochloric acid 37 %, fuming, extra pure

article number: 9277

Abbr.	Descriptions of used abbreviations
ppm	Parts per million
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STEL	Short-term exposure limit
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative
WES	Safe Work Australia: Workplace exposure standards for airborne contaminants

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture.

Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Section 1 - Product and Company Identification

Product Name: Sodium Bisulfite
Chemical Formula: NaHSO₃
CAS Number: 007631-90-5
Other Designations: Sodium Bisulfite Solution, Sodium Hydrogen Sulfite Solution.
General Use: Food and pharmaceutical preservative, waste water dechlorination agent, laboratory reagent, reducing agent, dietary supplement, and color preservative.

Manufacturer: INEOS Calabrian Corporation
 5500 Hwy. 366
 Port Neches, Texas 77651

Telephone: 409-727-1471
Fax: 409-727-5803
Emergency Contact: CHEMTREC 800-424-9300

Section 2 - Hazards Identification

Emergency Overview

Target Organs: Respiratory system, eyes, skin
GHS Classification: Acute Toxicity, Oral (Category 4)
 Acute Toxicity, Dermal (Category 5)
 Serious Eye Irritant (Category 2A)

GHS Label Elements: Signal Word – Warning

Pictogram



Corrosive



Irritant

Hazard Statements: H302 – Harmful if swallowed
 H313 – May be harmful to skin
 H319 – Causes serious eye irritation

Precautionary Statements: P280 – Wear protective equipment for hands, eyes, face and respiratory tract
 P305, P351 and P338 – IF IN EYES: Rinse with water for several minutes.
 Remove contact lenses if present and continue rinsing.

Other Hazards: Contact with acids liberates toxic sulfur dioxide gas.

HMIS Classification: Health Hazard 2
 Flammability 0
 Physical 0

NFPA Rating:

Health Hazard	2
Fire	0
Reactivity	0

Potential Health Effects:

Inhalation:	Irritant to respiratory tract
Eye:	Irritant
Skin:	Irritant
Ingestion:	Harmful if swallowed
Aggravated Medical Condition:	Capable of provoking bronchospasm in sulfite sensitive individuals with asthma.

Section 3 - Composition / Information on Ingredients

Composition	CAS Number	% Wt
Water	-	50 – 70
Sodium bisulfite	007631-90-5	30 – 50
Sodium Sulfite	007757-83-7	< 1.0
Sodium Sulfate	007757-82-6	< 3.5

Section 4 - First Aid Measures

<u>Exposure Route</u>	<u>Symptom</u>	<u>Treatment</u>
Inhalation:	Sore throat, shortness of breath coughing, and congestion.	Remove from exposure to fresh air. Seek medical attention in severe cases or if recovery is not rapid.
Eye Contact:	Irritation to eyes and mucous membranes.	Irrigate with water until no evidence of chemical remains. Obtain medical attention.
Skin Contact:	Irritation, itching, dermatitis	Wash with soap and drench with water. Remove contaminated clothing and wash before reuse.
Ingestion:	Irritation to mucous membranes.	Give large quantities of water or milk immediately. Obtain medical attention.

Seek appropriate medical attention and provide this SDS to attending doctor

Note to physician: Exposure may aggravate acute or chronic asthma, emphysema and bronchitis.

Section 5 - Fire-Fighting Measures

Flash Point:	Not combustible.
Flash Point Method:	Not Applicable.
Burning Rate:	Not Applicable.
Auto Ignition Temperature:	Not Applicable.
LEL:	Not Applicable.
UEL:	Not Applicable.
Flammability Classification:	Not Flammable.
Extinguishing Media:	Use extinguishing agent appropriate for surrounding fire conditions.
Unusual Fire or Explosion Hazards:	None indicated.
Hazardous Combustion Product:	May release hazardous gas.
Fire-Fighting Instructions:	Do not release runoff from fire control methods to sewers or

Fire-Fighting Equipment:

waterways.
Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive- pressure mode.

Section 6 - Accidental Release Measures

Spill / Leak Procedures:

Small Spills / Leaks:

Wear appropriate PPE - See Section 8.

Spills can be neutralized with an alkaline material such as caustic soda. Leaks may be located by spraying the area with ammonium hydroxide solution which forms a white fume in the presence of sulfur dioxide.

Large Spills / Leaks:

Containment:

Large spills should be handled according to a predetermined plan.

For large spills, dike far ahead of contaminated runoff for later disposal.

Section 7 - Handling and Storage

Handling Precautions:

Storage Requirements:

Avoid contact with product. Do not breathe dust or vapor.

Store in areas, away from heat and moisture and protect from physical damage. Segregate from acids and oxidizers.

Section 8 - Exposure Controls / Personal Protection:

Component: Sodium Bisulfite

CAS Number: 007631-90-5

ACGIH (TLV)

TWA: 5 mg/m³

OSHA (PEL)

TWA: 5 mg/m³

NIOSH (REL)

TWA: 5 mg/m³

IDLH – None established

IDLH - Immediately Dangerous to Life or Health

PEL – Permissible Exposure Limit

REL – Recommended Exposure Limit

TLV – Threshold Limit Value

ACGIH – American Conference of Governmental Industrial Hygienists

TWA – Time Weighted Average based on 8 hour exposure days and a 40 hour week.

Ventilation:

Provide general or local exhaust ventilation systems to maintain airborne Concentrations below OSHA limits (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at the source.

Respiratory Protection:

Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear a SCBA. **Warning! Air-**

purifying respirators do not protect workers in oxygen-deficient atmospheres.

- Protective Clothing / Equipment:** Wear protective gloves, boots, and clothing when necessary to prevent excessive skin contact. Wear protective eyeglasses or goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).
- Safety Stations:** Make emergency eyewash stations, showers, and washing facilities available in the work area.
- Contaminated Equipment:** Remove this material from personal protective equipment as needed. Do not eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before food or beverage consumption.

Section 9 - Physical and Chemical Properties

Physical State:	Liquid	Water Solubility:	NA
Appearance:	Yellow	Other Solubility:	NA
Odor Threshold:	Pungent SO ₂ odor	Boiling Point:	205 °F
Vapor Pressure:	NA	Freezing Point:	26 °F
Vapor Density (Air=1):	NA	Melting Point:	
Formula Weight:	104	Evaporation Rate:	Normal.
Density:	NA	pH:	2.9 – 4.9
Specific Gravity (H₂O=1):	1.3 - 1.4	% Volatile:	NA

Section 10 - Stability & Reactivity

- Stability:** Stable under normal conditions.
- Polymerization:** Hazardous polymerization will not occur.
- Chemical Incompatibilities:** Sodium Bisulfite Solutions may release toxic and hazardous fumes of sulfur oxides, including sulfur dioxide. Acute poisoning from sulfur dioxide is rare because the gas is easily detected. It is so irritating that contact cannot be tolerated. Symptoms include coughing, hoarseness, sneezing, tearing, and breathing difficulty. However, workers who cannot escape high accidental exposure may suffer severe pulmonary damage which can be fatal. Contact with powdered potassium, sodium metals, alkali, and oxidizing agents produce violent reactions. Reacts with water and steam to form corrosive sulfurous acid. Reacts with chlorates to form unstable chlorine dioxide.
- Conditions to Avoid:** Avoid excessive heat, or open flame.
- Hazardous Decomposition Products:** May release hazardous sulfur dioxide gas

Section 11 - Toxicological Information

- Eye Effects (rabbit):** Not available. **Acute Inhalation Effects (rat):** Not available.
- Skin Effects (rabbit):** Not available. **Acute Oral Effects (rat):** LD₅₀ = 2,000 mg/kg
- Carcinogenicity:** IARC, NTP, and OSHA do not list Sodium Bisulfite as a carcinogen.
- Chronic Effects:** Prolonged or repeated exposure may cause dermatitis, and sensitization

reactions. Exposure to asthmatic, atopic and sulfite sensitive individuals may result in severe bronchioconstriction and reduced levels in forced expiratory volume. Decomposition of sodium bisulfite solutions may release toxic and hazardous fumes of sulfur oxides, including sulfur dioxide, which may cause permanent pulmonary impairments from acute and chronic exposure. ***The Immediately Dangerous to Life or Health (IDLH) level for SO₂ is 100 ppm.***

Aquatic Toxicity: The toxicity threshold of Sodium Bisulfite (100 hr. at 23 degrees Celsius) to Daphnia Magna has been reported to be 102 mg/l. In the presence of additional sodium salts, this threshold may be lower. For minnows, exposed for 6 hours to sodium bisulfite solution in distilled water at 19 degrees Celsius it was 60-65 mg/l, and in hard water at 18 degrees Celsius it was 80-85 mg/l.

The 24, 48, and 96 hour LC50 value was 240 mg/l for the mosquito-fish (Gambusia affinis) in turbid water at 17 - 22 degree Celsius.

Section 12 - Ecological Information

Ecotoxicity: Sodium Bisulfite is a non hazardous solution commonly used as a waste water dechlorination agent. High concentrations will contribute to elevated chemical oxygen demand in aquatic environments.

Environmental Transport: Soluble in water.

Environmental Degradation: Rapid biological decomposition.

Soil Absorption/Mobility: Slight.

Section 13 - Disposal Considerations

Disposal: Waste determinations typically consider Sodium Bisulfite contaminated materials to be non-hazardous.

Disposal Regulatory Requirements: Follow applicable Federal, state and local regulations.

Container Cleaning and Disposal: Follow applicable Federal, state and local regulations.

Section 14 - Transport Information

Shipping Name: Bisulfites, aqueous solutions, n.o.s.
Technical Name: Sodium Bisulfite
Shipping Symbols: Corrosive
Hazard Class: 8 - Corrosive
Subsidiary Hazard: NA
ID No. (Placard): UN2693
Packing Group: III
Label: Required
Reputable Quantity: (RQ) 5,000 Lbs

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Classification (40 CFR 261):	Not listed.
RCRA Hazardous Waste Number (40 CFR 261):	Not listed.
CERCLA Hazardous Substance (40 CFR 302.4):	Listed.
CERCLA Reportable Quantity (RQ):	5000 pounds
SARA Title III:	Not listed.
FIFRA:	Not regulated.
TSCA:	Inventory listed chemical; PAIR Reportable; Not listed in Toxic Substances Chemical Index

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000):	Not listed.
OSHA Specifically Regulated Substance:	Not listed.

Other Regulations:

FDA:	Regulated when used as a food preservative.
Proposition 65 (California):	Not Listed

Section 16 - Other Information

This product is NSF certified to NSF/ANSI Standard 60 and is subject to a maximum use limit (MUL) of 46 mg/L for potable water dechlorination applications.

Previous SDS issue date: May, 2015
Current SDS issue date: September, 2016
Reason for current revision: Company name change.

The information herein is believed to be reliable. However, no warranty, expressed or implied, is made as to its accuracy or completeness and none is made as to the fitness of this material for any purpose. The manufacturer shall not be liable for damages to person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance	Sodium hydroxide
Registration number (REACH)	this information is not available
CAS number	1310-73-2
Alternative name(s)	sodium hydroxide
Article number	A0287961

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	General use
Uses advised against	Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin.

1.3 Details of the supplier of the safety data sheet

Chemos GmbH & Co. KG
 Sonnenring 7
 84032 Altdorf
 Germany

Telephone: +49 871-966346-0
 Telefax: +49 871-966346-13
 e-mail: chemos@chemos.de
 Website: <http://www.chemos.de/>

e-mail (competent person) chemos@chemos.de

1.4 Emergency telephone number

Emergency information service +49 89 1 92 40

Poison centre				
Country	Name	Postal code/ city	Telephone	Telefax
United Kingdom	National Poison Information Centre Medical Toxicology Unit	SE14 5ER London	+44 171 635 91 91	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.16	substance or mixture corrosive to metals	1	Met. Corr. 1	H290
3.2	skin corrosion/irritation	1A	Skin Corr. 1A	H314
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318

For full text of abbreviations: see SECTION 16.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- Signal word danger

- Pictograms

GHS05



- Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

- Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P390 Absorb spillage to prevent material damage.

P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Sodium hydroxide
Identifiers	
CAS No	1310-73-2
EC No	215-185-5
Molecular formula	HNaO
Molar mass	40 g/mol

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

Following skin contact

Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, ABC-powder

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Substance or mixture corrosive to metals.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically.

Appropriate containment techniques

Neutralisation techniques.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

6.4 Reference to other sections

Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

- Handling of incompatible substances or mixtures

Do not mix with acids.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Removal of dust deposits.

- Corrosive conditions

Store in corrosive resistant container with a resistant inner liner.

- Ventilation requirements

Use local and general ventilation.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
GB	dust		WEL		10					i	EH40/2005
GB	dust		WEL		4					r	EH40/2005
GB	sodium hydroxide	1310-73-2	WEL				2				EH40/2005

Notation

Ceiling-C

ceiling value is a limit value above which exposure should not occur

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

Notation

i	inhalable fraction
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit); measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	1 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear protective gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid
Colour	white
Odour	characteristic

Other safety parameters

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

pH (value)	not applicable
Melting point/freezing point	323 °C
Initial boiling point and boiling range	1,388 °C at 101.3 kPa
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	non-combustible
Explosion limits of dust clouds	not determined
Vapour pressure	not determined
Density	2.13 g/cm ³ at 20 °C
Vapour density	this information is not available
Solubility(ies)	not determined

Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	not determined
Viscosity	not relevant (solid matter)
Explosive properties	none
Oxidising properties	none

9.2 Other information

Solid content	100 %
---------------	-------

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". It's a reactive substance. Substance or mixture corrosive to metals.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

Acids

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment-relevant information

Recycling/reclamation of other inorganic materials.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packageings

It is a dangerous waste; only packageings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number	1823
14.2 UN proper shipping name	SODIUM HYDROXIDE, SOLID
14.3 Transport hazard class(es)	
Class	8 (corrosive substances)
14.4 Packing group	II (substance presenting medium danger)
14.5 Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6 Special precautions for user	
Provisions for dangerous goods (ADR) should be complied within the premises.	
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code	
The cargo is not intended to be carried in bulk.	

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1823
Proper shipping name	SODIUM HYDROXIDE, SOLID
Class	8
Classification code	C6
Packing group	II
Danger label(s)	8



Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg
Transport category (TC)	2
Tunnel restriction code (TRC)	E

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

Hazard identification No	80
Emergency Action Code	2W
International Maritime Dangerous Goods Code (IMDG)	
UN number	1823
Proper shipping name	SODIUM HYDROXIDE, SOLID
Class	8
Marine pollutant	-
Packing group	II
Danger label(s)	8



Special provisions (SP)	-
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg
EmS	F-A, S-B
Stowage category	A
Segregation group	18 - Alkalis

International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1823
Proper shipping name	Sodium hydroxide, solid
Class	8
Packing group	II
Danger label(s)	8



Excepted quantities (EQ)	E2
Limited quantities (LQ)	5 kg

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

Deco-Paint Directive (2004/42/EC)

VOC content	0 %
-------------	-----

Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	0 %
-------------	-----

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.

Sodium hydroxide

Version number: GHS 1.0

Date of compilation: 2019-11-12

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance	Sulphuric acid <50%
Registration number (REACH)	01-2119458838-20-xxxx
EC number	231-639-5
Index number in CLP Annex VI	016-020-00-8
CAS number	7664-93-9
Alternative name(s)	Sulphuric acid 37% - accumulatoracid 1.28 Sulphuric acid 15%

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Industrial use
Uses advised against	Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin.

1.3 Details of the supplier of the safety data sheet

FRIEDRICH SCHARR KG
Liebknechtstraße 50
70565 Stuttgart
Germany

Telephone: +49 711 7868-0
Telefax: +49 711 7868-489
e-mail: info@scharr.de
Website: www.scharr.de

e-mail (competent person) produktsicherheit@scharr.de (Produktsicherheit)

1.4 Emergency telephone number

Emergency information service +49 711 7868-237
This number is only available during the following office hours: Mon-Fri 07:00 - 17:00

Poison centre			
Country	Name	Postal code/city	Telephone
Germany	Giftinformation Freiburg	79106 Freiburg im Breisgau	+49 (0)761 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Hazard class	Category	Hazard class and category	Hazard statement
substance or mixture corrosive to metals	1	Met. Corr. 1	H290
skin corrosion/irritation	1A	Skin Corr. 1A	H314
serious eye damage/eye irritation	1	Eye Dam. 1	H318
hazardous to the aquatic environment - chronic hazard	1	Aquatic Chronic 1	H410

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- signal word danger

- pictograms

GHS05, GHS09



- hazard statements

H290

May be corrosive to metals.

H314

Causes severe skin burns and eye damage.

H410

Very toxic to aquatic life with long lasting effects.

- precautionary statements

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

P280

Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/....

P303+P361+P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P390

Absorb spillage to prevent material damage.

P391

Collect spillage.

P501

Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance

Sulphuric acid <50%

Identifiers

REACH Reg. No

01-2119458838-20-xxxx

EC No

231-639-5

CAS No

7664-93-9

Index No

016-020-00-8

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Purity	15 – 50 %		
Specific Conc. Limits	M-Factors	ATE	Exposure route
Skin Corr. 1A; H314: C ≥ 15 % Skin Irrit. 2; H315: 5 % ≤ C < 15 % Eye Dam. 1; H318: C ≥ 15 % Eye Irrit. 2; H319: 5 % ≤ C < 15 %	-	-	

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Self-protection of the first aider.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Call a physician in any case.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Call a physician immediately.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Call a doctor. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Breathing difficulties. Headache. Vertigo.

4.3 Indication of any immediate medical attention and special treatment needed

Subsequent observance for pneumonia and pulmonary oedema. Supervise the blood circulation.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO₂), Sand

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Danger of bursting container. Substance or mixture corrosive to metals.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂), Sulphur dioxide (SO₂), Hydrogen sulphide (H₂S)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Provision of sufficient ventilation.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Neutralisation techniques. Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas. Never add water to this product.

- handling of incompatible substances or mixtures

Do not mix with alkali.

- keep away from

Caustic solutions

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- corrosive conditions

Store in corrosive resistant container with a resistant inner liner.

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

- specific designs for storage rooms or vessels
- Lagerklasse (storage class according to TRGS 510, 8 B (non-combustible corrosive materials (except Germany) only corrosive to metals))
- packaging compatibilities
Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)								
Country	Name of substance	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Source
AT	sulphuric acid ... %	7664-93-9	MAK		0,1			GKV
CH	sulphuric acid ... %	7664-93-9	MAK		0,1		0,1	SUVA
DE	sulphuric acid ... %	7664-93-9	MAK		0,1		0,1	DFG
DE	sulphuric acid ... %	7664-93-9	AGW		0,1		0,1	TRGS 900
EU	sulphuric acid ... %	7664-93-9	IOELV		0,05			2009/161/EU

Notation

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours
time-weighted average (unless otherwise specified)

Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	0,05 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	0,1 mg/m ³	human, inhalatory	worker (industry)	acute - local effects

Environmental values

Relevant PNECs and other threshold levels				
End-point	Threshold level	Organism	Environmental compartment	Exposure time
PNEC	0,003 mg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0 mg/l	aquatic organisms	marine water	short-term (single instance)

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Relevant PNECs and other threshold levels				
End-point	Threshold level	Organism	Environmental compartment	Exposure time
PNEC	8,8 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	0,002 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
PNEC	0,002 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- type of material

FKM: fluoro-elastomer

- material thickness

0,4 mm

- breakthrough times of the glove material

>480 minutes (permeation: level 6)

- protective gloves - splash protection

Type of material IIR: isobutene-isoprene (butyl) rubber
FKM: fluoro-elastomer

- other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Physical state	liquid
Colour	colourless
Odour	odourless
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	>100 °C
Evaporation rate	not determined
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not determined
pH (value)	<1 (20 °C) (acid)
Kinematic viscosity	19,29 mm ² /s at 20 °C

Solubility(ies)

Water solubility	miscible in any proportion
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Partition coefficient

Partition coefficient n-octanol/water (log value)	this information is not available
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Vapour pressure	23 hPa at 20 °C
-----------------	-----------------

Density and/or relative density

Density	1,25 – 1,4 g/cm ³ at 20 °C
---------	---------------------------------------

Particle characteristics	not relevant (liquid)
--------------------------	-----------------------

9.2 Other information

Information with regard to physical hazard classes	there is no additional information
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Other safety characteristics

Miscibility	Completely miscible with water.
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Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

SECTION 10: Stability and reactivity**10.1 Reactivity**

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". It's a reactive substance. Substance or mixture corrosive to metals.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

Bases

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Classification according to GHS (1272/2008/EC, CLP)****Acute toxicity**

Shall not be classified as acutely toxic.

GHS of the United Nations, annex 4: May be harmful if swallowed.

Acute toxicity			
Exposure route	Endpoint	Value	Species
oral	LD50	2.140 mg/kg	rat

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Acc. to 1272/2008/EC: Very toxic to aquatic life with long lasting effects.

Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV): WGK 1, slightly hazardous to water (Germany)

Aquatic toxicity (acute)			
Endpoint	Value	Species	Exposure time
EC50	>100 mg/l	aquatic invertebrates	48 h
ErC50	>100 mg/l	algae	72 h

Biodegradation

Data are not available.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Information on this property is not available.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment-relevant information

Recycling/reclamation of other inorganic materials. Regeneration of acids.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN	UN 2796
IMDG-Code	UN 2796
ICAO-TI	UN 2796

14.2 UN proper shipping name

ADR/RID/ADN	SULPHURIC ACID
IMDG-Code	SULPHURIC ACID
ICAO-TI	Sulphuric acid

14.3 Transport hazard class(es)

ADR/RID/ADN	8
IMDG-Code	8
ICAO-TI	8

14.4 Packing group

ADR/RID/ADN	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

hazardous to the aquatic environment

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - additional information

Classification code	C1
Danger label(s)	8, fish and tree



Environmental hazards	yes (hazardous to the aquatic environment)
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	80
International Maritime Dangerous Goods Code (IMDG) - additional information	
Marine pollutant	yes (hazardous to the aquatic environment)
Danger label(s)	8, fish and tree



Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-A, S-B
Stowage category	B
Segregation group	1 - Acids

International Civil Aviation Organization (ICAO-IATA/DGR) - additional information

Environmental hazards	yes (hazardous to the aquatic environment)
Danger label(s)	8



Excepted quantities (EQ)	E2
Limited quantities (LQ)	0,5 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Relevant provisions of the European Union (EU)

VOC Deco-Paint Directive 2004/42/EC

VOC content	0 %
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Industrial Emissions Directive (IED)

VOC content	0 %
-------------	-----

National regulations (Austria)

Ordinance on combustible liquids (VbF) not assigned (flash point higher than 55 °C, water miscible)

National regulations (Germany)

Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV)

Wassergefährdungsklasse, WGK 1 slightly hazardous to water
(water hazard class)

Index number 182

National regulations Switzerland

Ordinance on the incentive tax on volatile organic compounds (VOCV)

The product is exempt from the tax. Product in which the VOC content does not exceed 3 per cent (% by weight).

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

National inventories

Substance is listed in the following national inventories
REACH (Europe)

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2009/161/EU	Commission Directive establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	European Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
AGW	Workplace exposure limit
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DFG	Deutsche Forschungsgemeinschaft MAK-und BAT-Werte-Liste, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Wiley-VCH, Weinheim
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
GKV	Grenzwerteverordnung
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air

Sulphuric acid <50%

Version number: 1.1

Date of compilation: 01.06.2021

Abbr.	Descriptions of used abbreviations
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
SUVA	Grenzwerte am Arbeitsplatz, Suva
TRGS	Technische Regeln für Gefahrstoffe (technical rules for hazardous substances, Germany)
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Safety data sheet
according to 1907/2006/EC, Article 31

Page 1/6

Printing date 08.10.2018

Version number 8

Revision: 08.08.2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

*** 1.1 Product identifier**

*** Trade name:** aquafloc 01

*** Article number:** 605001

*** 1.2 Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

*** Application of the substance / the mixture** Chemical for various applications

*** 1.3 Details of the supplier of the safety data sheet**

*** Manufacturer/Supplier:**

aqua plus Wasser- und Recyclingsysteme GmbH
Am Barnberg 14
73560 Böbingen an der Rems
Germany
Phone: +49 7173 7144-0
Fax: +49 7173 7144-15
info@aqua-plus.de

*** Emergency telephone number:**

Phone: +49 7173 7144-0

SECTION 2: Hazards identification

*** 2.1 Classification of the substance or mixture**

*** Classification according to Regulation (EC) No 1272/2008**

The substance is not classified according to the CLP regulation.

*** 2.2 Label elements**

*** Labelling according to Regulation (EC) No 1272/2008** Void

*** Hazard pictograms** Void

*** Signal word** Void

*** Hazard statements** Void

*** 2.3 Other hazards**

*** Results of PBT and vPvB assessment**

*** PBT:** Not applicable.

*** vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

*** 3.1 Chemical characterisation: Substances**

*** CAS No. Designation:**

anionic water-soluble polymer

*** Identification number(s):** none, polymer

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.10.2018

Version number 8

Revision: 08.08.2018

Trade name: aquafloc 01

(Contd. of page 1)

SECTION 4: First aid measures

* 4.1 Description of first aid measures

* **General information** No special measures required.

* **After inhalation** Supply fresh air; consult doctor in case of symptoms.

* **After skin contact**

The product is not skin irritating.

Wash with plenty of soap and water.

If skin irritation continues, consult a doctor.

* **After eye contact**

Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.

* **After swallowing** In case of persistent symptoms consult doctor.

* 4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

* 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

* 5.1 Extinguishing media

* **Suitable extinguishing agents**

CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

* **For safety reasons unsuitable extinguishing agents** Water with a full water jet.

* 5.2 Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.

Can be released in case of fire

Carbon oxides (CO_x)

Nitrogen oxides (NO_x)

Under certain fire conditions, traces of other toxic gases cannot be excluded.

* 5.3 Advice for firefighters

* **Protective equipment:** Wear self-contained breathing apparatus.

* **Additional information**

Cool endangered containers with water spray jet.

Fire residues and extinguishing water must be disposed safely.

SECTION 6: Accidental release measures

* 6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Do not breathe dust.

Avoid contact with skin and eyes.

Product forms slippery surface when combined with water.

* **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.

* **6.3 Methods and material for containment and cleaning up:** Collect mechanically.

* 6.4 Reference to other sections

See Section 8 for information on personal protection equipment.

SECTION 7: Handling and storage

* 7.1 Precautions for safe handling

Avoid contact with skin and eyes.

Prevent formation of dust.

Observe workplace exposure limits.

* **Information about protection against explosions and fires:** No special measures required.

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.10.2018

Version number 8

Revision: 08.08.2018

Trade name: aquafloc 01

(Contd. of page 2)

*** 7.2 Conditions for safe storage, including any incompatibilities***** Storage***** Requirements to be met by storerooms and containers:**

Observe all relevant storage regulations for protection of water bodies.

*** Information about storage in one common storage facility:**

Store away from foodstuffs.

Not required.

*** Further information about storage conditions:**

Store in cool, dry conditions in well sealed containers.

*** 7.3 Specific end use(s)** No further relevant information available.**SECTION 8: Exposure controls/personal protection***** Additional information about design of technical systems:** No further data; see item 7.*** 8.1 Control parameters***** Components with critical values that require monitoring at the workplace:**

Observe all workplace limits for dust.

*** DNELs** no data available*** PNECs** no data available*** Additional information:** The lists that were valid during the compilation were used as basis.*** 8.2 Exposure controls***** Personal protective equipment***** General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

*** Breathing equipment:**

If all applicable workplace exposure limits are observed and good ventilation is ensured, no special measures required.

Dust mask

*** Protection of hands:** Protective gloves.*** Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

*** Eye protection:** Safety glasses*** Body protection:** Protective work clothing**SECTION 9: Physical and chemical properties***** 9.1 Information on basic physical and chemical properties***** General Information***** Appearance:****Form:**

Granules

Colour:

white

*** Smell:**

product specific

*** Odour threshold:**

no data available

*** pH-value (5 g/l) at 20 °C:**

6 - 8

*** Change in condition****Melting point/Melting range:**

Not determined

Boiling point/Boiling range:

not determined

*** Flash point:**

Not applicable

*** Inflammability (solid, gaseous)**

Product is not inflammable.

*** Ignition temperature:**

no data available

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.10.2018

Version number 8

Revision: 08.08.2018

Trade name: aquafloc 01

(Contd. of page 3)

* Decomposition temperature:	no data available
* Self-inflammability:	no data available
* Danger of explosion:	Product is not explosive.
* Critical values for explosion:	
Lower:	no data available
Upper:	no data available
* Oxidising properties	no data available
* Vapour pressure:	no data available
* Density	For data of a certain product please refer to its technical data sheet.
* Relative density	no data available
* Vapour density	no data available
* Evaporation rate	no data available
* Solubility in / Miscibility with Water at 20 °C:	10 g/l miscible
* Partition coefficient (n-octanol/water):	no data available
* Viscosity:	
dynamic:	not applicable
kinematic:	not applicable
* 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- * **10.1 Reactivity** see 10.3
- * **10.2 Chemical stability**
- * **Conditions to be avoided:** No decomposition if used according to specifications.
- * **10.3 Possibility of hazardous reactions** No dangerous reactions known
- * **10.4 Conditions to avoid** No further relevant information available.
- * **10.5 Incompatible materials:** No further relevant information available.
- * **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides (NO_x)

SECTION 11: Toxicological information

* 11.1 Information on toxicological effects

* Acute toxicity

* LD/LC50 values that are relevant for classification:

Oral	LD50	> 5000 mg/kg (Rat)
------	------	--------------------

* Primary irritant effect:

* **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

* Serious eye damage/irritation

Product may cause irritation mechanically due to its content of fine dust.

* **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

* **Repeated dose toxicity** no data available

* **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** no data available

* **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

* **Carcinogenicity** Based on available data, the classification criteria are not met.

* **Reproductive toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.10.2018

Version number 8

Revision: 08.08.2018

Trade name: aquafloc 01

(Contd. of page 4)

- * **STOT-single exposure** Based on available data, the classification criteria are not met.
- * **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- * **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

* 12.1 Toxicity

* **Aquatic toxicity:**

LC50 (96h)	> 1000 mg/L (Fathead minnow (<i>Pimephales promelas</i>))
------------	---

* **12.2 Persistence and degradability** No further relevant information available.

* **Other information:** The product is slightly biodegradable.

* **12.3 Bioaccumulative potential** Not bioaccumulable.

* **12.4 Mobility in soil** No further relevant information available.

* **Ecotoxicological effects:**

* **Behaviour in sewage processing plants:**

EC50 (96h)	> 500 mg/L (Algae)
------------	--------------------

* **Additional ecological information:**

* **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

* **12.5 Results of PBT and vPvB assessment**

* **PBT:** Not applicable.

* **vPvB:** Not applicable.

* **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

* 13.1 Waste treatment methods

* **Recommendation** Disposal according to official regulations.

* **Uncleaned packagings:**

* **Recommendation:** Disposal according to official regulations.

* **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

* 14.1 UN-Number

* ADR, IMDG, IATA	Void
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* 14.2 UN proper shipping name

* ADR, IMDG, IATA	Void
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* 14.3 Transport hazard class(es)

* ADR, IMDG, IATA	Void
* Class	

* 14.4 Packing group

* ADR, IMDG, IATA	Void
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* 14.5 Environmental hazards:	Not applicable.
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* 14.6 Special precautions for user	Not applicable.
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(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.10.2018

Version number 8

Revision: 08.08.2018

Trade name: aquafloc 01

(Contd. of page 5)

* 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
* Transport/Additional information:	No dangerous good according to the above specifications.
* UN "Model Regulation":	-

SECTION 15: Regulatory information

* 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

* National regulations

* Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Water hazard classification was done according to the precondition of the VwVwS from 05-17-1999.

* Other regulations, limitations and prohibitive regulations

Product resp. its monomers are listed in:

TSCA (USA)

AICS (Australia)

DSL (Canada)

EINECS (Europe)

MITI or MOL (Japan)

KECL (South Korea)

PICCS (Phillipines)

NEPA (China)

* 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

* Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

* Sources Safety data sheet from the producer

* * Data compared to the previous version altered.

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: aquasorb 50

UFI: W391-J03S-P009-RQMV

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture

Adsorbent for waste water

High performance flocculant

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

aqua-plus Wasser- und Recyclingsysteme GmbH

Am Barnberg 14
73560 Böbingen an der Rems
Tel.: +49 (0) 7173-7144 18-0
Fax : +49 (0) 7173- 7144-18-15
E-mail: info@aqua-plus.de

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms GHS05

Signal word Danger

Hazard-determining components of labelling:

aluminium sulphate

(Contd. on page 2)

IE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

(Contd. of page 1)

Hazard statements

H318 Causes serious eye damage.

Precautionary statements

P280 Wear eye protection / face protection.


P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

2.3 Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures**Description:** Modified and activated aluminiumhydrosilicates and additives**Dangerous components:**

CAS: 10043-01-3	aluminium sulphate	 Eye Dam. 1, H318	10-25%
EINECS: 233-135-0			

SVHC No SVHC**Additional information:**

Ionactiv and adsorbing bentonite with additives

For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures**General information:**

Take affected persons out into the fresh air.

Take affected persons out of danger area and lay down.

Position and transport stably in side position.

After inhalation: Supply fresh air; consult doctor in case of complaints.**After skin contact:**

If skin irritation continues, consult a doctor.

Immediately wash with water and soap and rinse thoroughly.

After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.**After swallowing:**

If symptoms persist consult doctor.

Do not induce vomiting! Rinse mouth and drink plenty of water.

Information for doctor: Symptomatic treatment, meaning decontamination and check of vital function**4.2 Most important symptoms and effects, both acute and delayed**

Profuse sweating

Nausea

Cramp

Dizziness

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

IE

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

(Contd. of page 2)

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture

No further relevant information available.

5.3 Advice for firefighters

Protective equipment:

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

Additional information

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid formation of dust.

Use respiratory protective device against the effects of dust.

Product forms slippery surface when combined with water.

Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:

Keep contaminated washing water and dispose of appropriately.

Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up:

Use neutralising agent.

Dispose contaminated material as waste according to item 13.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Store in cool, dry place in tightly closed receptacles.

Keep receptacles tightly sealed.

Any unavoidable deposit of dust must be regularly removed.

Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.

Use only in well ventilated areas.

Avoid contact with skin and eyes.

Thorough dedusting.

Information about fire - and explosion protection:

Dust can combine with air to form an explosive mixture.

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

Store in dry and cool conditions. Open receptacles should be used immediately.

Information about storage in one common storage facility: Not required.

Further information about storage conditions:

Store under lock and key and with access restricted to technical experts or their assistants only.

(Contd. on page 4)

IE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

(Contd. of page 3)

Protect from frost.

Protect from humidity and water.

Keep container tightly sealed.

Storage class: 13 (Non-combustible solids)**7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:**CAS: 10043-01-3 aluminium sulphate**OEL Long-term value: 2 mg/m³**CAS: 60676-86-0 Silica, fused**OEL Long-term value: 0.08 mg/m³
fused respirable dust**Additional information:** The lists valid during the making were used as basis.

8.2 Exposure controls

Appropriate engineering controls No further data; see item 7.**Individual protection measures, such as personal protective equipment****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Respiratory protection: Respiratory protection recommended when the TLV limit is exceeded.**Hand protection**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

For the permanent contact gloves made of the following materials are suitable: Nitrile rubber, NBR
Eye/face protection

Tightly sealed goggles

(Contd. on page 5)

IE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50**Body protection:** Protective work clothing

(Contd. of page 4)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Physical state	Solid
Colour:	Light grey
Odour:	Characteristic
Flash point:	Not applicable.
pH	Mixture is non-soluble (in water).
Solubility	
water:	Insoluble.
Density and/or relative density	
Density at 20 °C:	0.7 g/cm ³
Particle characteristics	See item 3.

9.2 Other information

Appearance:

Form: Powder

Important information on protection of health and environment, and on safety.

Explosive properties: In general, product does not present an explosion hazard.

Information with regard to physical hazard classes

Explosives	Void
Flammable gases	Void
Aerosols	Void
Oxidising gases	Void
Gases under pressure	Void
Flammable liquids	Void
Flammable solids	Void
Self-reactive substances and mixtures	Void
Pyrophoric liquids	Void
Pyrophoric solids	Void
Self-heating substances and mixtures	Void
Substances and mixtures, which emit flammable gases in contact with water	Void
Oxidising liquids	Void
Oxidising solids	Void
Organic peroxides	Void
Corrosive to metals	Void
Desensitised explosives	Void

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.

(Contd. on page 6)

IE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

(Contd. of page 5)

10.2 Chemical stability**Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

To avoid thermal decomposition, do not overheat above the working temperature according to the product information.

10.3 Possibility of hazardous reactions

Risk of dust explosion if enriched with fine dust in the presence of air.

10.4 Conditions to avoid No further relevant information available.**10.5 Incompatible materials:** Do not dilute with water.**10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**Acute toxicity** Based on available data, the classification criteria are not met.**LD/LC50 values relevant for classification:****CAS: 10043-01-3 aluminium sulphate**

Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)

Skin corrosion/irritation Based on available data, the classification criteria are not met.**Serious eye damage/irritation** Causes serious eye damage.**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.**Germ cell mutagenicity** Based on available data, the classification criteria are not met.**Carcinogenicity** Based on available data, the classification criteria are not met.**Reproductive toxicity** Based on available data, the classification criteria are not met.**STOT-single exposure** Based on available data, the classification criteria are not met.**STOT-repeated exposure** Based on available data, the classification criteria are not met.**Aspiration hazard** Based on available data, the classification criteria are not met.**Additional toxicological information:****CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** No CMR-effects known.**11.2 Information on other hazards****Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

12.1 Toxicity**Aquatic toxicity:****CAS: 10043-01-3 aluminium sulphate**

EC50 / 48h	>100 mg/l (Daphnia magna)
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12.2 Persistence and degradability

Based on the product character, the product is not biodegradable. However, the product can be eliminated by abiotic processes e.g. adsorption to the sludge.

12.3 Bioaccumulative potential No further relevant information available.**12.4 Mobility in soil** No further relevant information available.**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.

(Contd. on page 7)

IE

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

(Contd. of page 6)

vPvB: Not applicable.**12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

12.7 Other adverse effects**Other information:** Do not discharge into drains, surface waters or groundwater.**Additional ecological information:****General notes:**

Negative ecological effects are, according to the current state of knowledge, not expected.

Due to the consistence and the low watersolubility of the product a bioavailability is not probable.

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations

13.1 Waste treatment methods**Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Waste disposal key: LOW-Code: 01 04 09 (waste sand and clays)**Uncleaned packaging:****Recommendation:**

Bring contents / container back to the point of sale or to a collective setting for special waste .

Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

14.1 UN number or ID number

ADR, IMDG, IATA

Void

14.2 UN proper shipping name

ADR, IMDG, IATA

Void

14.3 Transport hazard class(es)

ADR, ADN, IMDG, IATA

Class

Void

14.4 Packing group

ADR, IMDG, IATA

Void

14.5 Environmental hazards:**Marine pollutant:**

No

14.6 Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

UN "Model Regulation":

Void

IE

(Contd. on page 8)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

(Contd. of page 7)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Directive 2012/18/EU

Named dangerous substances - ANNEX I None of the ingredients is listed.

DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

None of the ingredients is listed.

REGULATION (EU) 2019/1148

Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))

None of the ingredients is listed.

Annex II - REPORTABLE EXPLOSIVES PRECURSORS

None of the ingredients is listed.

Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

None of the ingredients is listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

H318 Causes serious eye damage.

Date of previous version: 16.09.2022

Version number of previous version: 1

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

(Contd. on page 9)

IE

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.01.2023

Version number 2 (replaces version 1)

Revision: 23.01.2023

Trade name: aquasorb 50

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

(Contd. of page 8)

*** Data compared to the previous version altered.**

IE



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023



Version number 5 (replaces version 4)

Revision: 16.05.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name: OMEGA MP-5152**
- **Article number:** 853386000
- **1.2 Relevant identified uses of the substance or mixture**
Specialty chemicals for electroplating and surface treatment
- **Uses advised against** No further relevant information available.
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
COVENTYA GmbH
Stadtring Nordhorn 116
33334 Gütersloh
Tel.: +49 5241 / 93 62 0
Fax: +49 5241 / 93 62 24
Internet: www.coventya.com
eMail: msds@coventya.com
- **Further information obtainable from:**
Department of Environment, Health and Safety (EHS)
eMail: msds@coventya.com
- **1.4 Emergency telephone number:** +49 (0) 89/19240

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
Met. Corr. 1 H290 May be corrosive to metals.
Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.
Aquatic Acute 1 H400 Very toxic to aquatic life.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**

GHS05 GHS09
- **Signal word** Danger
- **Hazard-determining components of labelling:**
disodium sulphide
- **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
- **Precautionary statements**
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

(Contd. on page 2)



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 1)

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

CAS: 128-04-1 EINECS: 204-876-7	sodium dimethyldithiocarbamate ⚠ Aquatic Acute 1, H400	10-≤20%
CAS: 1313-82-2 EINECS: 215-211-5 Index number: 016-009-00-8 Reg.nr.: 01-2119513694-38	disodium sulphide ⚠ Acute Tox. 3, H311; ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318; ⚠ Aquatic Acute 1, H400; ⚠ Acute Tox. 4, H302, EUH031	10-≤20%
CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 Reg.nr.: 01-2119457892-27	sodium hydroxide ⚠ Met. Corr. 1, H290; Skin Corr. 1A, H314 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 % Met. Corr. 1; H290: C ≥ 0.5 %	0.3-≤1%

Additional information: For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

After inhalation: In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact:

Rinse opened eye for several minutes under running water. Then consult a doctor.

Call a doctor immediately.

After swallowing:

Call for a doctor immediately.

Drink plenty of water and provide fresh air. Call for a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

(Contd. on page 3)



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 2)

- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Mouth respiratory protective device.
Do not inhale explosion gases or combustion gases.
- **Additional information** Cool endangered receptacles with water spray.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** Keep respiratory protective device available.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Recommended storage temperature:** > 0 °C / 32 °F

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 3)

- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**

1310-73-2 sodium hydroxide

Inhalative	DNEL (long term on workers-Local)	1 mg/m ³ (workers)
	DNEL (long term on general population-Local)	1 mg/m ³ (population)

- **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

- **Appropriate engineering controls** No further data; see item 7.

- **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
The choice of the device of respiratory protection must be based on the planned or known exposure levels, the dangers of the product and the limits of use without danger of the device of respiratory protection held.

· **Hand protection**



Protective gloves

Wear solvent and alkali-resistant protective gloves according to EN 374.

In full contact

Glove material: butyl rubber

Thickness (mm): 0.7

Permeation time (min.): > 480

In splash contact

Glove material: nitrile rubber / PVC

Thickness (mm): 0.4

Permeation time (min.): > 240

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Wear gloves for the protection against mechanical hazards according to EN 388.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore

(Contd. on page 5)



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 4)

to be checked prior to the application.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact in work areas without heightened risk of injury (e.g. Laboratory) gloves made of the following material are suitable:

Nitrile rubber, NBR

· For the permanent contact gloves made of the following materials are suitable:

Nitrile rubber, NBR

PVC gloves

· Eye/face protection

Tightly sealed goggles

· Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties**· General Information****· Physical state**

Fluid

· Colour:

Yellow - Green

· Odour:

Characteristic

· Odour threshold:

Not determined.

· Melting point/freezing point:

Undetermined.

· Boiling point or initial boiling point and boiling range

100 °C

· Flammability

Not applicable.

· Lower and upper explosion limit**· Lower:**

Not determined.

· Upper:

Not determined.

· Flash point:

Not applicable.

· Ignition temperature:

Not applicable

· Decomposition temperature:

Not determined.

· pH-value:

>12

· Viscosity:**· Kinematic viscosity**

Not determined.

· Dynamic:

Not determined.

· Solubility**· water:**

Fully miscible.

· Partition coefficient n-octanol/water (log value)

Not determined.

· Vapour pressure:

Not determined.

· Density:1.14-1.18 g/cm³**· Relative density**

Not determined.

· Vapour density

Not determined.

(Contd. on page 6)



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 5)

· 9.2 Other information**· Appearance:****· Form:** Fluid**· Important information on protection of health and environment, and on safety.****· Auto-ignition temperature:** Product is not selfigniting.**· Explosive properties:** Product does not present an explosion hazard.**· Solvent separation test:****· VOC (EC)** 20.00 %**· VOC (EU)** 1,041.3 g/l**· Change in condition****· Evaporation rate** Not determined.**· Information with regard to physical hazard classes****· Explosives** Void**· Flammable gases** Void**· Aerosols** Void**· Oxidising gases** Void**· Gases under pressure** Void**· Flammable liquids** Void**· Flammable solids** Void**· Self-reactive substances and mixtures** Void**· Pyrophoric liquids** Void**· Pyrophoric solids** Void**· Self-heating substances and mixtures** Void**· Substances and mixtures, which emit flammable gases in contact with water** Void**· Oxidising liquids** Void**· Oxidising solids** Void**· Organic peroxides** Void**· Corrosive to metals** May be corrosive to metals.**· Desensitised explosives** Void

SECTION 10: Stability and reactivity

· 10.1 Reactivity No further relevant information available.**· 10.2 Chemical stability****· Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

· 10.3 Possibility of hazardous reactions No dangerous reactions known.**· 10.4 Conditions to avoid** No further relevant information available.**· 10.5 Incompatible materials:** No further relevant information available.**· 10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**· Acute toxicity** Based on available data, the classification criteria are not met.**· Skin corrosion/irritation** Causes severe skin burns and eye damage.

(Contd. on page 7)



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 6)

- **Serious eye damage/irritation** Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

· Endocrine disrupting properties

None of the ingredients is listed.

SECTION 12: Ecological information

· 12.1 Toxicity**· Aquatic toxicity:****1313-82-2 disodium sulphide**

Sensitisation	EC50/24H	2.1-7.1 mg/L (daphnia)
	LC50/96H/fresh water	75 mg/l (seaweeds)
	LC50/48H/sea water	1.38 mg/l (poisson/fish) Pimephales promelas - Tête de boule
	EC50/48H	93 mg/l (bacteria)

1310-73-2 sodium hydroxide

LC50/96H/fresh water	35-189 mg/l (poisson/fish)
EC50/48H	40.4 mg/l (daphnia) Ceriodaphnia dubia

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Remark:** Very toxic for fish

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods**· Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packaging:

- **Recommendation:** Disposal must be made according to official regulations.

(Contd. on page 8)

EU-EN

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 7)

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· **14.1 UN number or ID number**

· **ADR, IMDG, IATA**

UN3266

· **14.2 UN proper shipping name**

· **ADR**

3266 CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (disodium sulphide), ENVIRONMENTALLY HAZARDOUS

· **IMDG**

CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (disodium sulphide, sodium dimethyldithiocarbamate), MARINE POLLUTANT

· **IATA**

CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (disodium sulphide)

· **14.3 Transport hazard class(es)**

· **ADR, IMDG**



· **Class**

8 Corrosive substances.

· **Label**

8

· **IATA**



· **Class**

8 Corrosive substances.

· **Label**

8

· **14.4 Packing group**

· **ADR, IMDG, IATA**

III

· **14.5 Environmental hazards:**

Product contains environmentally hazardous substances: sodium dimethyldithiocarbamate

· **Marine pollutant:**

Yes

Symbol (fish and tree)

· **Special marking (ADR):**

Symbol (fish and tree)

· **14.6 Special precautions for user**

Warning: Corrosive substances.

· **Hazard identification number (Kemler code):**

80

· **EMS Number:**

F-A,S-B

· **Segregation groups**

(SGG18) Alkalis

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **Segregation Code**

SG35 Stow "separated from" SGG1-acids

· **14.7 Maritime transport in bulk according to IMO instruments**

Not applicable.

(Contd. on page 9)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 8)

· Transport/Additional information:

· ADR

· Limited quantities (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· Transport category

3

· Tunnel restriction code

E

· IMDG

· Limited quantities (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":

UN 3266 CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (DISODIUM SULPHIDE), 8, III, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Regulation (EC) n°2037/2000**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category** E1 Hazardous to the Aquatic Environment

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **REGULATION (EU) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

(Contd. on page 10)



Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.06.2023

Version number 5 (replaces version 4)

Revision: 16.05.2023

Trade name: OMEGA MP-5152

(Contd. of page 9)

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H400 Very toxic to aquatic life.
EUH031 Contact with acids liberates toxic gas.

Date of previous version: 01.12.2022**Version number of previous version:** 4**Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (REACH)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Met. Corr. 1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

*** Data compared to the previous version altered.**

EU-EN

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· 1.1 Product identifier

· Trade name: **KLC Additiv AS 30**

· 1.2 Relevant identified uses of the substance or mixture and uses advised against

· Sector of Use

- SU1 Agriculture, forestry, fishery
- SU2a Mining, (without offshore industries)
- SU2b Offshore industries
- SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
- SU5 Manufacture of textiles, leather, fur
- SU6b Manufacture of pulp, paper and paper products
- SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
- SU9 Manufacture of fine chemicals
- SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- SU14 Manufacture of basic metals, including alloys
- SU15 Manufacture of fabricated metal products, except machinery and equipment
- SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
- SU18 Manufacture of furniture
- SU19 Building and construction work
- SU21 Consumer uses: Private households / general public / consumers
- SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- SU23 Electricity, steam, gas water supply and sewage treatment
- SU0 Other

· Product category

- PC3 Air care products
- PC7 Base metals and alloys
- PC8 Biocidal products
- PC9a Coatings and paints, thinners, paint removers
- PC12 Fertilisers
- PC14 Metal surface treatment products
- PC19 Intermediate
- PC20 Products such as pH-regulators, flocculants, precipitants, neutralization agents
- PC21 Laboratory chemicals
- PC23 Leather treatment products
- PC26 Paper and board treatment products
- PC27 Plant protection products
- PC28 Perfumes, fragrances
- PC30 Photo-chemicals
- PC31 Polishes and wax blends
- PC34 Textile dyes, and impregnating products
- PC35 Washing and cleaning products (including solvent based products)
- PC36 Water softeners
- PC37 Water treatment chemicals
- PC39 Cosmetics, personal care products
- PC40 Extraction agents
- PC0 Other

· Process category

- PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
- PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
- PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
- PROC4 Chemical production where opportunity for exposure arises
- PROC5 Mixing or blending in batch processes
- PROC7 Industrial spraying
- PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
- PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

(Contd. on page 2)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 1)

- PROC10 Roller application or brushing
- PROC11 Non industrial spraying
- PROC13 Treatment of articles by dipping and pouring
- PROC14 Tableting, compression, extrusion, pelletisation, granulation
- PROC15 Use as laboratory reagent
- PROC19 Manual activities involving hand contact
- PROC26 Handling of solid inorganic substances at ambient temperature

- **Environmental release category**

- ERC1 Manufacture of the substance
- ERC2 Formulation into mixture
- ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- ERC5 Use at industrial site leading to inclusion into/onto article
- ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
- ERC7 Use of functional fluid at industrial site
- ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
- ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
- ERC8c Widespread use leading to inclusion into/onto article (indoor)
- ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
- ERC8f Widespread use leading to inclusion into/onto article (outdoor)
- ERC11a Widespread use of articles with low release (indoor)

- **Application of the substance / the mixture** Formulation additive

- **1.3 Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

- KMU LOFT Cleanwater SE
- Krummattstraße 4
- D-79688 Hausen

Tel.: +49 (0)7622/66696-0
Fax.: +49 (0)7622/66696-20

- **Information department:** sdb@kmu-loft.de

- **1.4 Emergency telephone number:**

Emergency Contact (24-Hour-Number): GBK GmbH +49 (0)6132-84463

*

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The product is not classified, according to the GB CLP regulation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:**
Safety data sheet available on request.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Aqueous solution of a salt of organic phosphonic acid

(Contd. on page 3)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 2)

· Dangerous components:

CAS: 3794-83-0	tetrasodium (1-hydroxyethylidene)bisphosphonate	29 - 30%
EINECS: 223-267-7	⚠ Acute Tox. 4, H302; Eye Irrit. 2, H319	
Reg.nr.: 01-2119510382-52-0001	Specific concentration limit: Eye Irrit. 2; H319: C ≥ 30 %	

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information** Immediately remove any clothing soiled by the product.
- **After skin contact** Immediately rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Seek immediate medical advice.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose of the material collected according to regulations.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** Only handle and refill product in closed systems.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
Do not use iron, steel, copper or copper alloys in receptacles
Do not use light alloy receptacles.
Available materials are plastic or enamel
For short time storage receptacles of stainless steel are applicable
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Protect from frost.

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 3)

- Keep receptacle tightly sealed.
- **Storage class 12**
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **DNELs**
The DNELs are those of the active acid.

DNEL (oral, long-term, workers): 13 mg/kg/day
DNEL (oral, long-term, consumers): 6,5 mg/kg/day
- **PNECs**
The PNECs are those of the active acid.

PNEC (aqua-freshwater): 0,136 mg/l
PNEC (aqua-marine water): 0,0136 mg/l
PNEC (marine-CHARM): 0,068 mg/l
PNEC (sediment (freshwater)): 59 mg/kg sediment wwt
PNEC (sediment (marine water)): 5,9 mg/kg sediment wwt
PNEC (soil): 96 mg/kg wwt
PNEC (sewage treatment plant): 20 mg/l
PNEC (oral): 12 mg/kg food
- **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures should be adhered to when handling chemicals.
Immediately remove all soiled and contaminated clothing
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Hand protection** Protective gloves.
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye/face protection** Safety glasses

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Colour:** Light yellow
- **Odour:** Odourless
- **Melting point/freezing point:** -5 °C
- **Boiling point or initial boiling point and boiling range** 104 °C
- **Flash point:** Not applicable
- **pH at 20 °C** 11.5

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 5)

- | | |
|--|--|
| <ul style="list-style-type: none"> · Solubility · Water: · Density and/or relative density · Density at 20 °C: | <p>Fully miscible</p> <p>1.29-1.35 g/cm3</p> |
|--|--|
-
- | | |
|---|---|
| <ul style="list-style-type: none"> · 9.2 Other information · Appearance: · Form: · Important information on protection of health and environment, and on safety. · Self igniting: · Explosive properties: | <p>Fluid</p> <p>Product is not selfigniting.</p> <p>Product does not exhibit an explosion hazard.</p> |
|---|---|
-
- | | |
|--|---|
| <ul style="list-style-type: none"> · Information with regard to physical hazard classes · Explosives · Flammable gases · Aerosols · Oxidising gases · Gases under pressure · Flammable liquids · Flammable solids · Self-reactive substances and mixtures · Pyrophoric liquids · Pyrophoric solids · Self-heating substances and mixtures · Substances and mixtures, which emit flammable gases in contact with water · Oxidising liquids · Oxidising solids · Organic peroxides · Corrosive to metals · Desensitised explosives | <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> <p>Void</p> |
|--|---|

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
To avoid thermal decomposition do not superheat.
- **10.3 Possibility of hazardous reactions** Reacts with certain metals
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
Carbon monoxide
Phosphine

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **LD/LC50 values that are relevant for classification:** LD50 (oral) >2850 mg/kg rat
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 6)

- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

· Endocrine disrupting properties
--

None of the ingredients is listed.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Type of test Effective concentration Method Assessment**
 LC50 (Salmo gairdneri) > 300 mg/l after 96h
 EC50 (Daphnia magna) > 500 mg/l after 48h
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
 The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**
 Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water even if small quantities leak into the ground.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
 After prior treatment product has to be disposed of in a dump for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste.
- **Waste disposal key:**
 According to the EAK decree, the specification of the waste disposal key code shall be specific to the respective industrial section and the application process.
- **Uncleaned packagings:**
- **Recommendation:**
 Contaminated packagings should be emptied thoroughly. They can be recycled after thorough and proper cleaning.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

SECTION 14: Transport information

- | | |
|---------------------------------------|------|
| · 14.1 UN number or ID number | |
| · ADR, ADN, IMDG, IATA | Void |
| · 14.2 UN proper shipping name | |
| · ADR, ADN, IMDG, IATA | Void |

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 7)

· 14.3 Transport hazard class(es)	
· ADR, ADN, IMDG, IATA	
· Class	Void
· 14.4 Packing group	
· ADR, IMDG, IATA	Void
· 14.5 Environmental hazards:	Not applicable.
· 14.6 Special precautions for user	Not applicable.
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· UN "Model Regulation":	Void

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (UK REACH)

PNEC: Predicted No-Effect Concentration (UK REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity – Category 4

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

- *** Data compared to the previous version altered.**

GB

(Contd. on page 8)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 8)

Annex: Exposure scenario 1

- **Short title of the exposure scenario** Formulation
- **Sector of Use**
 - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
 - SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
 - SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- **Product category**
 - PC3 Air care products
 - PC8 Biocidal products
 - PC9a Coatings and paints, thinners, paint removers
 - PC9b Fillers, putties, plasters, modelling clay
 - PC9c Finger paints
 - PC12 Fertilisers
 - PC19 Intermediate
 - PC20 Products such as pH-regulators, flocculants, precipitants, neutralization agents
 - PC21 Laboratory chemicals
 - PC23 Leather treatment products
 - PC26 Paper and board treatment products
 - PC27 Plant protection products
 - PC28 Perfumes, fragrances
 - PC30 Photo-chemicals
 - PC31 Polishes and wax blends
 - PC34 Textile dyes, and impregnating products
 - PC35 Washing and cleaning products (including solvent based products)
 - PC36 Water softeners
 - PC37 Water treatment chemicals
 - PC39 Cosmetics, personal care products
 - PC40 Extraction agents
 - PC0 Other
- **Process category**
 - PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 - PROC4 Chemical production where opportunity for exposure arises
 - PROC5 Mixing or blending in batch processes
 - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 - PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 - PROC14 Tableting, compression, extrusion, pelletisation, granulation
 - PROC15 Use as laboratory reagent
 - PROC26 Handling of solid inorganic substances at ambient temperature
- **Environmental release category**
 - ERC1 Manufacture of the substance
 - ERC2 Formulation into mixture
 - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 16.7 t
 - Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: 1200 t
 - Emission days per site: 72
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)

(Contd. on page 9)

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 8)

Body weight: 70 kg (Default for workers)

Area of skin contact with the substance under conditions of use:

240 cm² (PROC1, PROC3, PROC15), 480 cm² (PROC2, PROC4, PROC5, PROC8B, PROC9, PROC14), 960 cm² (PROC8A), 1980 cm² (PROC26)

- **Environment**

Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)

Fraction of applied amount lost from process/use to waste water: 0.0001 (AISE SPERC 2.1.a.v1)

- **Risk management measures**

- **Worker protection**

- **Technical protective measures**

Containment plus good work practice required: Yes

Local exhaust ventilation required plus good work practise: No

- **Personal protective measures**

Skin protection: Protective gloves

Eye protection: Safety glasses

Protective clothing: Working clothing worn.

Respiratory protection: None

Breathing apparatus: None

- **Environmental protection measures**

Municipal or other type of external waste water treatment: Yes, Secondary biological treatment (on- or off- site) required prior to release to freshwater or marine environments (Including sites for which the receiving water is marine environment. This provision is necessary to manage possible risks for the marine environment.)

Effluent (of the waste water treatment plant) discharge rate: 10000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

- **Disposal measures**

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

- **Exposure estimation**

- **Worker (dermal)**

Dermal local exposure (long-term): 2000 (PROC5) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

- **Worker (inhalation)**

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving spraying of liquid product): n/aInhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

- **Environment**

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 1.67

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 8.35E-02 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 1.62E-02 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 7.04E+00 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 1.98E+00 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)

(Contd. on page 10)

GB

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 9)

Predicted Environmental Concentration (PEC) Marine water: 8.89E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 3.87E+00 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 1.35E-18 mg/m³ (Annual average local PEC in air (total))

· **Consumer** Not relevant for this Exposure Scenario.

GB

(Contd. on page 11)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 10)

Annex: Exposure scenario 2

- **Short title of the exposure scenario**

Anti-scalant, complexing agent, also functioning to stabilise hydrogen peroxide in cleaning products

- **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU0 Other

- **Product category**

PC35 Washing and cleaning products (including solvent based products)

PC36 Water softeners

- **Process category**

PROC7 Industrial spraying

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC10 Roller application or brushing

- **Environmental release category**

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

- **Notes**

This usage relates very closely to other scenarios in the use pattern. The exposures and releases are read across from those. The usage is included separately for general transparency.

The other relevant uses are:

Formulation

Industrial use of cleaning products

Institutional (professional) and domestic (consumer) use of cleaning products

Scale inhibition and bleaching in the paper industry (including stabilisation of hydrogen peroxide)

Scale inhibition and bleaching in the textiles industry (including stabilisation of hydrogen peroxide).

Please refer to those sections for all required details of the exposure scenario modelling and exposure levels.

GB

(Contd. on page 12)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 11)

Annex: Exposure scenario 3

- **Short title of the exposure scenario** Industrial use of cleaning products
- **Sector of Use SU3** Industrial uses: Uses of substances as such or in preparations at industrial sites
- **Product category**
 - PC35 Washing and cleaning products (including solvent based products)
 - PC36 Water softeners
- **Process category**
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC4 Chemical production where opportunity for exposure arises
 - PROC7 Industrial spraying
 - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- **Environmental release category**
 - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 50 kg
 - Duration of exposure per day at workplace [for one worker]: up to up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: 11 t
 - Emission days per site: 220
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
480 cm² (PROC2, PROC8b), 1500 cm² (PROC7) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 1
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
 - Procedural and control technologies: Good practice recommendations: If performing spraying, mists should be contained/ventilated.
 - Training, Monitoring/reporting and auditing systems: Equipment must be well maintained and cleaned daily.
- **Personal protective measures**
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: Good practice recommendations: If performing high pressure spraying, RPE should be used
- **Environmental protection measures**
 - Municipal or other type of external waste water treatment: Yes, Secondary biological treatment (on- or off- site) required prior to release to freshwater or marine environments (Including sites for which the receiving water is marine environment. This provision is necessary to manage possible risks for the marine environment.)
 - Effluent (of the waste water treatment plant) discharge rate: 4000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)
 - Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))
- **Disposal measures**
 - Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.
 - Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential

(Contd. on page 13)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 12)

for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

· **Exposure estimation**

· **Worker (dermal)**

Dermal local exposure (long-term): 2000 (PROC7) $\mu\text{g}/\text{cm}^2$ (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): $<0.42 \text{ mg/kg bw/d}$ (Extreme worst case)

· **Worker (inhalation)**

Inhalation exposure (in mg/m^3)/8h workday: $1.20\text{E}-04$ (highest possible exposure via vapours)

Inhalation exposure (in mg/m^3)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): $15 \text{ mg}/\text{m}^3$, equivalent to oral exposure of 2.1 mg/kg bw.d (Stoffenmanager estimate)

· **Environment**

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 50

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: $1.25\text{E}+00 \text{ mg/l}$ (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: $1.29\text{E}-01 \text{ mg/l}$ (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: $5.64\text{E}+01 \text{ mg/kg ww}$ (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: $5.93\text{E}+01 \text{ mg/kg ww}$ (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: $1.29\text{E}-02 \text{ mg/l}$ (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: $5.63\text{E}+00 \text{ mg/kg ww}$ (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): $2.87\text{E}-17 \text{ mg}/\text{m}^3$ (Annual average local PEC in air (total))

· **Consumer** Consumer exposure is characterised separately.

GB

(Contd. on page 14)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 13)

Annex: Exposure scenario 4

- **Short title of the exposure scenario**

Institutional (professional) and domestic (consumer) use of cleaning products

- **Sector of Use**

SU21 Consumer uses: Private households / general public / consumers

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

- **Product category**

PC3 Air care products

PC31 Polishes and wax blends

PC35 Washing and cleaning products (including solvent based products)

PC36 Water softeners

- **Process category**

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC4 Chemical production where opportunity for exposure arises

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC10 Roller application or brushing

PROC11 Non industrial spraying

PROC13 Treatment of articles by dipping and pouring

PROC15 Use as laboratory reagent

PROC19 Manual activities involving hand contact

- **Environmental release category**

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

- **Conditions of use**

- **Duration and frequency**

Used amount of substance per day: 30 kg

Duration of exposure per day at workplace [for one worker]: up to up to 8 h (Worst case assumption)

Frequency of exposure at workplace [for one worker]: daily

Annual amount used per site: 105 kg

Emission days per site: 365

- **Worker**

Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)

Body weight: 70 kg (Default for workers)

Area of skin contact with the substance under conditions of use:

- **Environment**

Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)

Fraction of applied amount lost from process/use to waste water: 1

- **Risk management measures**

- **Worker protection**

- **Technical protective measures**

Containment plus good work practice required: Yes

Local exhaust ventilation required plus good work practise: No

Procedural and control technologies: Good practice recommendations: If performing spraying, mists should be contained/ventilated.

Training. Monitoring/reporting and auditing systems: Equipment must be well maintained and cleaned daily.

- **Personal protective measures**

Professional use

Skin protection: Protective gloves

Eye protection: Safety glasses

Protective clothing: Working clothing worn.

Breathing apparatus: None

Respiratory protection: Good practice recommendations: If performing high pressure spraying, RPE should be used

(Contd. on page 15)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 14)

Customer use

Type of PPE (gloves, etc): None (Worst case, as PPE is not generally used)

Environmental protection measures

Professional use

Air emission abatement: no

Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)

Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

Consumer use

Municipal or other type of waste water treatment: Yes (Assume standard municipal WWTP with disposal of sludge by agricultural spreading.)

Effluent (of the waste water treatment plant) discharge rate: 2.000 m³/d (Default for a standard WWTP)

Disposal measures

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

Exposure estimation

Worker (dermal)

Dermal local exposure (long-term): 5000 (PROC11) µg/cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

Worker (inhalation)

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving spraying of liquid product): 21 mg/m³

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 16 mg/m³, equivalent to oral exposure of 2.3 mg/kg bw.d (Stoffenmanager estimate)

Environment

Professional use

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 0.29

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 1.45E-02 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 9.45E-03 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 4.12E+00 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 3.44E-01 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 2.19E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 9.53E-01 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 2.14E-19 mg/m³ (Annual average local PEC in air (total))

Consumer use

(Contd. on page 16)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 15)

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 1.81
 Release from point source aquatic (after STP) (kg/d) (local exposure estimation): N/A
 Release from point source to air (direct) (kg/d) (local exposure estimation): 0
 Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A
 Predicted Environmental Concentration (PEC) STP: 9.05E-02 mg/l (PEC for micro organisms in the STP)
 Predicted Environmental Concentration (PEC) Freshwater: 1.68E-02 mg/l (Local PEC in surface water during emission episode (dissolved))
 Predicted Environmental Concentration (PEC) Freshwater sediment: 7.33E+00 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))
 Predicted Environmental Concentration (PEC) Soil: 2.15E+00 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)
 Predicted Environmental Concentration (PEC) Marine water: 9.57E-03 mg/l (Local PEC in marine water during emission episode (dissolved))
 Predicted Environmental Concentration (PEC) Marine water sediment: 4.17E+00 mg/kg ww (Local PEC in marine sediment during emission episode (dissolved))
 Predicted Environmental Concentration (PEC) Air (annual average): 2.44E-18 mg/m³ (Annual average local PEC in air (total))

Consumer

Oral exposure, acute (in mg/kg bw/d): 0.0207 (ConsExpo output for oral non-respirable dose; oral acute internal dose (polishes scenario))
 Dermal local exposure, acute (in mg/ cm²): 0.0465 (loading) + 1 (application) (ConsExpo output for dermal load based on highest-exposure scenario/product type identified in ECETOC TRA tool (hand dishwashing products scenario))
 Dermal systemic exposure, acute (in mg/kg bw/d): 4.2E-06 (loading) + 4.2E-04 (application) (Calculated from ConsExpo output for dermal acute internal dose and body weight 65 kg based on highest-exposure scenario/product type identified in ECETOC TRA tool (hand dishwashing products scenario))
 Inhalation exposure, acute (in mg/m³): not applicable (Measured data not available.)
 Oral exposure, long-term (in mg/kg bw/d): 4.5E-04 (ConsExpo output for oral non-respirable dose; oral chronic internal dose (polishes scenario))
 Dermal local exposure, long-term (in mg/ cm² /d): 0.0465 (loading) + 1 (application) (ConsExpo output for dermal load)
 Dermal systemic exposure, long-term (in mg/kg bw/d): 4.2E-06 (loading) + 4.2E-04 (application) (ConsExpo output for dermal chronic internal dose.)
 Inhalation exposure, long-term (in mg/m³/day): not applicable (Measured data not available.)

GB

(Contd. on page 17)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 16)

Annex: Exposure scenario 5

- **Short title of the exposure scenario** Personal care products (professional and consumer)
- **Sector of Use**
 - SU21 Consumer uses: Private households / general public / consumers
 - SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Product category**
 - PC36 Water softeners
 - PC39 Cosmetics, personal care products
- **Process category**
 - PROC11 Non industrial spraying
 - PROC19 Manual activities involving hand contact
- **Environmental release category**
 - ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 0.55 kg
 - Duration of exposure per day at workplace [for one worker]: up to up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: 200 kg
 - Emission days per site: 365
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
1500 cm² (PROC11), 1980 cm² (PROC19)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 1
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures -**
- **Environmental protection measures**
 - Onsite pre-treatment of waste water: No
 - Air emission abatement: no
 - Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)
 - Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)
 - Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))
- **Disposal measures**
 - Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.
 - Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.
- **Exposure estimation**
 - Exposure to professional users of personal care products is not quantified for this scenario because end use of these product types is explicitly excluded from the scope of UK REACH.
- **Environment**
 - Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 0.64
 - Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A
 - Release from point source to air (direct) (kg/d) (local exposure estimation): 0

(Contd. on page 18)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 17)

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 3.30E-02 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 1.12E-02 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 4.90E+00 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 7.83E-01 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 3.98E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 1.74E+00 mg/kg ww (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 8.88E-19 mg/m³ (Annual average local PEC in air (total))

· Consumer

Exposure to consumers is not quantified for this scenario because end use of these product types is explicitly excluded from the scope of UK REACH.

GB

(Contd. on page 19)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 18)

Annex: Exposure scenario 6

- **Short title of the exposure scenario**

- Anti-scalant, complexing agent in industrial water treatment (including cooling systems at power stations)

- **Sector of Use**

- SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

- SU23 Electricity, steam, gas water supply and sewage treatment

- **Product category**

- PC20 Products such as pH-regulators, flocculants, precipitants, neutralization agents

- PC36 Water softeners

- PC37 Water treatment chemicals

- **Process category**

- PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

- PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

- PROC4 Chemical production where opportunity for exposure arises

- PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

- PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

- **Environmental release category**

- ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

- **Conditions of use**

- **Duration and frequency**

- Open system

-

- Used amount of substance per day: 0.44 kg

- Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)

- Frequency of exposure at workplace [for one worker]: daily

- Annual amount used per site: 160 kg

- Emission days per site: 365

-

- Power station

-

- Used amount of substance per day: 2.5 kg

- Duration of exposure per day at workplace [for one worker]: 8 h (Worst case assumption)

- Frequency of exposure at workplace [for one worker]: daily

- Annual amount used per site: 910 kg

- Emission days per site: 365

-

- Closed recirculating system

-

- Used amount of substance per day: 0.06 kg (released)

- Duration of exposure per day at workplace [for one worker]: 8 h (Worst case assumption)

- Frequency of exposure at workplace [for one worker]: daily

- Emission days per site: 365

- **Worker**

- Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)

- Body weight: 70 kg (Default for workers)

- Area of skin contact with the substance under conditions of use:

- 240 cm² (PROC1), 480 cm² (PROC2, PROC4, PROC8b), 960 cm² (PROC8a)

- **Environment**

- Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)

- Fraction of applied amount lost from process/use to waste water: 1

- **Risk management measures**

- **Worker protection**

- **Technical protective measures**

- Containment plus good work practice required: Yes

(Contd. on page 20)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 19)

Local exhaust ventilation required plus good work practise: No

Procedural and control technologies: n/a

Training, Monitoring/reporting and auditing systems: n/a

Personal protective measures

Skin protection: Protective gloves

Eye protection: Safety glasses

Protective clothing: Working clothing worn.

Breathing apparatus: None

Respiratory protection: None

Environmental protection measures

Onsite pre-treatment of waste water: No

Municipal or other type of external waste water treatment: Power station scenario: None; Open and closed systems: Yes

Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

Disposal measures

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

Exposure estimation**Worker (dermal)**Dermal local exposure (long-term): 1000 (PROC8a/8b) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

Worker (inhalation)Inhalation exposure (in mg/m³)/8h workday: 1.20 x 10⁻⁴ (highest possible exposure via vapours)Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)**Environment**

Open system

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 0.44

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 2.20E-02 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 1.02E-02 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 4.43E+00 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 5.22E-01 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 2.92E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 1.27E+00 mg/kg ww (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 5.92E-19 mg/m³ (Annual average local PEC in air (total))

Closed system

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 1.6E-04

Release from point source aquatic (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

(Contd. on page 21)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 20)

Predicted Environmental Concentration (PEC) STP: 8.00E-06 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 8.05E-03 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 3.50E+00 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 1.90E-04 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 7.81E-04 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 3.40E-01 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 2.17E-22 mg/m³ (Annual average local PEC in air (total))

.

Power station

.

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 2.5

Release from point source aquatic (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: N/A mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 1.29E-01 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 5.64E+01 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 6.91E-15 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 1.29E-02 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 5.63E+00 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 1.34E-24 mg/m³ (Annual average local PEC in air (total))

· **Consumer** Exposure to consumers is not relevant for this scenario.

GB

(Contd. on page 22)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 21)

Annex: Exposure scenario 7

- **Short title of the exposure scenario** Metal surface treatment products
- **Sector of Use**
 - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
 - SU14 Manufacture of basic metals, including alloys
 - SU15 Manufacture of fabricated metal products, except machinery and equipment
- **Product category**
 - PC7 Base metals and alloys
 - PC14 Metal surface treatment products
- **Process category**
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 - PROC5 Mixing or blending in batch processes
 - PROC7 Industrial spraying
 - PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 - PROC13 Treatment of articles by dipping and pouring
- **Environmental release category**
 - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
 - ERC5 Use at industrial site leading to inclusion into/onto article
 - ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
 - ERC7 Use of functional fluid at industrial site
 - ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
 - ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
 - ERC8c Widespread use leading to inclusion into/onto article (indoor)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 3.3 kg
 - Duration of exposure per day at workplace [for one worker]: up to up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: ca. 1 t
 - Emission days per site: 300
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
240 cm² (PROC3), 480 cm² (PROC2, PROC5, PROC9, PROC13), 1500 cm² (PROC7) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 1
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
 - Procedural and control technologies: Good practice recommendations: If performing spraying, mists should be contained/ventilated.
 - Training. Monitoring/reporting and auditing systems: Equipment must be well maintained and cleaned daily.
- **Personal protective measures**
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None

(Contd. on page 23)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 22)

Respiratory protection: Good practice recommendations: If performing high pressure spraying, RPE should be used

· **Environmental protection measures**

Air emission abatement: no

Resulting fraction of applied amount in waste gas released to environment: 0

Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)

Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

· **Disposal measures**

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

· **Exposure estimation**

· **Worker (dermal)**

Dermal local exposure (long-term): 2000 (PROC5) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

· **Worker (inhalation)**

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving spraying of liquid product): 15 mg/m³

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

· **Environment**

Electroplating

· Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 3.3

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 1.65E-01 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 2.41E-02 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 1.05E+01 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 3.92E+00 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 1.68E-02 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 7.32E+00 mg/kg ww (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 3.65E-18 mg/m³ (Annual average local PEC in air (total))

· Cleaning

· Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 1.8

Release from point source aquatic (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 9.00E-02 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 1.68E-02 mg/l (Local PEC in surface water during emission episode (dissolved))

(Contd. on page 24)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 23)

Predicted Environmental Concentration (PEC) Freshwater sediment: 7.31E+00 mg/kg wwt (Local PEC in freshwater sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 2.14E+00 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 9.52E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 4.15E+00 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 1.99E-18 mg/m³ (Annual average local PEC in air (total))

· **Consumer** Exposure to consumers is not relevant for this scenario.

GB

(Contd. on page 25)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 24)

Annex: Exposure scenario 8

- **Short title of the exposure scenario** Scale inhibition in oilfield water systems
- **Sector of Use**
 - SU2a Mining, (without offshore industries)
 - SU2b Offshore industries
 - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
- **Product category**
 - PC35 Washing and cleaning products (including solvent based products)
 - PC37 Water treatment chemicals
- **Process category**
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- **Environmental release category**
 - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: Maximum limit 0.75 t per treatment (This is the maximum quantity per squeeze treatment (the largest quantities) in order to manage possible risks to the marine environment)
 - Duration of exposure per day at workplace [for one worker]: up to up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: Intermittent/daily (Use in squeeze treatment is intermittent only but workers may be more routinely exposed in other applications in oilfield)
 - Annual amount used per site: Frequency of high-dose squeeze treatments and possibility of other low-tonnage/very low-release uses in oilfield applications would add up. The squeeze treatment is the basis of the indicative environmental release model.
 - Emission days per site: For squeeze treatment an immediate release of 1/3 the loaded treatment direct to sea water (i.e. on the day of the treatment) is assumed.
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use: 240 cm² (PROC3), 480 cm² (PROC2, PROC8b), 960 cm² (PROC8a) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 0.333
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures**
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: None
- **Exposure estimation**
- **Worker (dermal)**
 - Dermal local exposure (long-term): 1000 (PROC8a/8b) µg/cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)
 - Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

(Contd. on page 26)

GB

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 25)

· Worker (inhalation)Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)**· Environment**

Release from point source to aquatic environment (without STP): 0.75 tonnes. This is the maximum amount that can be used in batchwise 'squeeze' treatment, expressed as active acid.

Predicted Environmental Concentration (PEC) Marine water: ≤0.068 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: n/a (Not characterised. The risk is less than that for water.)

· Consumer Exposure to consumers is not relevant for this scenario.

GB

(Contd. on page 27)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 26)

Annex: Exposure scenario 9

- **Short title of the exposure scenario** Industrial use of coatings/paints
- **Sector of Use**
 - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
 - SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
 - SU18 Manufacture of furniture
- **Product category** PC9a Coatings and paints, thinners, paint removers
- **Process category**
 - PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 - PROC5 Mixing or blending in batch processes
 - PROC7 Industrial spraying
 - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 - PROC10 Roller application or brushing
 - PROC13 Treatment of articles by dipping and pouring
- **Environmental release category**
 - ERC5 Use at industrial site leading to inclusion into/onto article
 - ERC8c Widespread use leading to inclusion into/onto article (indoor)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 12 L Coating
 - Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: 3.7 m³ Coating
 - Emission days per site: 300
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
240 cm² (PROC1, PROC3), 480 cm² (PROC2, PROC5, PROC8b, PROC13), 960 cm² (PROC10), 1500 cm² (PROC7) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 0.23 (Worst case)
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures**
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: None
- **Environmental protection measures**
 - Onsite waste treatment: Yes (settling/primary sedimentation)
 - Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)
 - Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

(Contd. on page 28)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 27)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

· **Disposal measures**

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water.

This provision is necessary to manage possible risks for the marine environment.

· **Exposure estimation**

· **Worker (dermal)**

Dermal local exposure (long-term): 1000 (PROC8a/8b) $\mu\text{g}/\text{cm}^2$ (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

· **Worker (inhalation)**

Inhalation exposure (in mg/m^3)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m^3)/8h workday (refers only to any contributing tasks involving spraying of liquid product): 15 mg/m^3

Inhalation exposure (in mg/m^3)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m^3 , equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

· **Environment**

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 0.054

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 2.70E-03 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 8.31E-03 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 3.62E+00 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 6.41E-02 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 1.04E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 4.54E-01 mg/kg ww (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 7.27E-20 mg/m^3 (Annual average local PEC in air (total))

· **Consumer** Consumer exposure is characterised separately.

GB

(Contd. on page 29)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 28)

Annex: Exposure scenario 10

- **Short title of the exposure scenario** Professional and consumer use of coatings/paints
- **Sector of Use**
 - SU19 Building and construction work
 - SU21 Consumer uses: Private households / general public / consumers
 - SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Product category** PC9a Coatings and paints, thinners, paint removers
- **Process category**
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 - PROC4 Chemical production where opportunity for exposure arises
 - PROC5 Mixing or blending in batch processes
 - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 - PROC10 Roller application or brushing
 - PROC11 Non industrial spraying
 - PROC19 Manual activities involving hand contact
- **Environmental release category**
 - ERC5 Use at industrial site leading to inclusion into/onto article
 - ERC8c Widespread use leading to inclusion into/onto article (indoor)
 - ERC8f Widespread use leading to inclusion into/onto article (outdoor)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 16 L Coating
 - Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: 625 L Coating
 - Emission days per site: 40
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
 - 240 cm² (PROC3), 480 cm² (PROC2, PROC4, PROC5, PROC8b), 960 cm² (PROC8a, PROC10), 1500 cm² (PROC11), 1980 cm² (PROC19) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 0.01
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures**
 - Professional use
 -
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: None
 -
 - Customer use
 -
 - Type of PPE (gloves, etc): None (Worst case, as PPE is not generally used)

(Contd. on page 30)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 29)

· Environmental protection measures

Professional use

·
Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)

Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

Consumer use

·
Municipal or other type of waste water treatment: Yes (Assume standard municipal WWTP with disposal of sludge by agricultural spreading.)

Effluent (of the waste water treatment plant) discharge rate: 2,000 m³/d (Default for a standard WWTP)

· Disposal measures

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

· Exposure estimation

· Worker (dermal)

Dermal local exposure (long-term): 5000 (PROC11) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

· Worker (inhalation)

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving spraying of liquid product): 21 mg/m³

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 16 mg/m³, equivalent to oral exposure of 2.3 mg/kg bw.d (Stoffenmanager estimate. In the unlikely event that the same individual workers carry out both handling of solid and also spraying, then the filter mask must be worn to manage risks.)

· Environment

Professional use

·
Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 0.125

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 6.25E-03 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 8.65E-03 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 3.77E+00 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 1.48E-01 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 1.39E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 6.04E-01 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 6.91E-20 mg/m³ (Annual average local PEC in air (total))

Consumer use

·
Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 0.105

Release from point source aquatic (after STP) (kg/d) (local exposure estimation): N/A

(Contd. on page 31)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 30)

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 5.25E-04 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 8.10E-03 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 3.53E+00 mg/kg ww (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 1.25E-02 mg/kg ww (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 8.31E-04 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 3.62E-01 mg/kg ww (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 1.41E-20 mg/m³ (Annual average local PEC in air (total))**Consumer**

Oral exposure, acute (in mg/kg bw/d): 0.78 (use of spray paints) (ConsExpo (oral non-respirable) output for acute internal dose.)

Dermal local exposure, acute (in mg/ cm²): 0.048 (use of aqueous paints) (ConsExpo output for dermal load based on highest-exposure scenario/product type identified in ECETOC TRA tool)

Dermal systemic exposure, acute (in mg/kg bw/d): 0.11 (Calculated from ConsExpo output for dermal acute internal dose and body weight 65 kg based on highest-exposure scenario/product type identified in ECETOC TRA tool)

Inhalation exposure, acute (in mg/m³): not applicable (Measured data not available.)

Oral exposure, long-term (in mg/kg bw/d): 4.3E-3 (ConsExpo (oral non-respirable) output for chronic internal dose.)

Dermal local exposure, long-term (in mg/ cm² /d): 0.048 (use of aqueous paints) (ConsExpo output for dermal load)

Dermal systemic exposure, long-term (in mg/kg bw/d): 3E-04 (ConsExpo output for dermal chronic internal dose.)

Inhalation exposure, long-term (in mg/m³/day): not applicable (Measured data not available.)

GB

(Contd. on page 32)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 31)

Annex: Exposure scenario 11

- **Short title of the exposure scenario**

Scale inhibition and bleaching in the paper industry (including stabilisation of hydrogen peroxide)

- **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU6b Manufacture of pulp, paper and paper products

- **Product category**

PC26 Paper and board treatment products

PC36 Water softeners

- **Process category**

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC5 Mixing or blending in batch processes

- **Environmental release category**

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC11a Widespread use of articles with low release (indoor)

- **Conditions of use**

- **Duration and frequency**

Used amount of substance per day: 83 kg

Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)

Frequency of exposure at workplace [for one worker]: daily

Annual amount used per site: 30 t

Emission days per site: 360

- **Worker**

Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)

Body weight: 70 kg (Default for workers)

Area of skin contact with the substance under conditions of use:

240 cm² (PROC3), 480 cm² (PROC2, PROC5) (ECETOC TRA defaults)

- **Environment**

Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)

Fraction of applied amount lost from process/use to waste water: 1 (initial release), 0.43 (after primary treatment on-site)

- **Risk management measures**

- **Worker protection**

- **Technical protective measures**

Containment plus good work practice required: Yes

Local exhaust ventilation required plus good work practise: No

- **Personal protective measures**

Skin protection: Protective gloves

Eye protection: Safety glasses

Protective clothing: Working clothing worn.

Breathing apparatus: None

Respiratory protection: None

- **Environmental protection measures**

Onsite waste treatment: Yes (settling/primary sedimentation)

Fraction of initially applied amount sent to external waste treatment (This is the sum of direct losses from processes to waste, and the residues from onsite waste water and waste gas treatment.): At the regional scale it is assumed that a further removal in municipal WWTP system applies for half of the phosphonates used in pulp and paper industry.

Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)

(Contd. on page 33)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 32)

Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

· **Disposal measures**

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

· **Exposure estimation**

· **Worker (dermal)**

Dermal local exposure (long-term): 2000 (PROC5) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

· **Worker (inhalation)**

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

· **Environment**

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 35.83

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 2.76E+00 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 2.76E-01 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 1.20E+02 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 4.45E-01 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 2.75E-02 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 1.20E+01 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 1.34E-24 mg/m³ (Annual average local PEC in air (total))

· **Consumer** Exposure to consumers is not relevant for this scenario.

GB

(Contd. on page 34)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 33)

Annex: Exposure scenario 12

- **Short title of the exposure scenario**

Scale inhibition and bleaching in the textiles industry (including stabilisation of hydrogen peroxide)

- **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU5 Manufacture of textiles, leather, fur

- **Product category**

PC20 Products such as pH-regulators, flocculants, precipitants, neutralization agents

PC23 Leather treatment products

PC34 Textile dyes, and impregnating products

PC36 Water softeners

- **Process category**

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC13 Treatment of articles by dipping and pouring

- **Environmental release category**

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

- **Conditions of use**

- **Duration and frequency**

Used amount of substance per day: 50-60 kg

Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)

Frequency of exposure at workplace [for one worker]: daily

Annual amount used per site: 11-12 t

Emission days per site: 220

- **Worker**

Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)

Body weight: 70 kg (Default for workers)

Area of skin contact with the substance under conditions of use:

480 cm² (PROC2, PROC8b, PROC13), 960 cm² (PROC8a) (ECETOC TRA defaults)

- **Environment**

Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)

Fraction of applied amount lost from process/use to waste water: Scouring process: 1 (initial release). 0.43 (after primary treatment on-site); Finishing process (TEGEWA SPERC 5.1c.v1): 0.2

- **Risk management measures**

- **Worker protection**

- **Technical protective measures**

Containment plus good work practice required: Yes

Local exhaust ventilation required plus good work practise: No

- **Personal protective measures**

Skin protection: Protective gloves

Eye protection: Safety glasses

Protective clothing: Working clothing worn.

Breathing apparatus: None

Respiratory protection: None

- **Environmental protection measures**

Onsite waste treatment: Yes (settling/primary sedimentation)

Fraction of initially applied amount sent to external waste treatment (This is the sum of direct losses from processes to waste, and the residues from onsite waste water and waste gas treatment.): At the regional scale it is assumed that a further removal in municipal WWTP system applies for half of the phosphonates used in pulp and paper industry.

Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)

(Contd. on page 35)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 34)

Effluent (of the waste water treatment plant) discharge rate: 4000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

• **Disposal measures**

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

• **Exposure estimation**

• **Worker (dermal)**

Dermal local exposure (long-term): 2000 (PROC13) µg/cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

• **Worker (inhalation)**

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

• **Environment**

Scouring

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 25

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 1.25 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 1.29E-01 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 5.64E+01 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 5.93E+01 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 1.29E-02 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 5.63 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 2.87E-17 mg/m³ (Annual average local PEC in air (total))

Finishing

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 10.64

Release from point source aquatic (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 5.32E-01 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 5.97E-02 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 2.60E+01 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 1.26E+01 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 5.95E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 2.59E-00 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 8.83E-18 mg/m³ (Annual average local PEC in air (total))

(Contd. on page 36)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

· **Consumer** Exposure to consumers is not relevant for this scenario.

(Contd. of page 35)

GB

(Contd. on page 37)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 36)

Annex: Exposure scenario 13

- **Short title of the exposure scenario** Scale inhibition in water desalination systems
- **Sector of Use**
 - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
 - SU23 Electricity, steam, gas water supply and sewage treatment
- **Product category**
 - PC20 Products such as pH-regulators, flocculants, precipitants, neutralization agents
 - PC36 Water softeners
 - PC37 Water treatment chemicals
- **Process category**
 - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 - PROC5 Mixing or blending in batch processes
 - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- **Environmental release category**
 - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 50 kg
 - Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: 15 t
 - Emission days per site: 300
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
480 cm² (PROC2, PROC5, PROC8b), 960 cm² (PROC8a) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 1 (initial release).
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures**
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: None
- **Environmental protection measures**
 - Resulting fraction of initially applied amount in waste water released from site to the external sewage system: 0.43 (after primary treatment on-site)
 - Municipal or other type of external waste water treatment: Yes, Secondary biological treatment (on- or off- site) required prior to release to freshwater or marine environments (Including sites for which the receiving water is marine environment. This provision is necessary to manage possible risks for the marine environment.)
 - Effluent (of the waste water treatment plant) discharge rate: 3000 m³/d (Default for a standard WWTP)
 - Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))
- **Disposal measures**
 - Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.
 - Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential

(Contd. on page 38)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 37)

for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

· **Exposure estimation**

· **Worker (dermal)**

Dermal local exposure (long-term): 2000 (PROC5) $\mu\text{g}/\text{cm}^2$ (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): $<0.42 \text{ mg/kg bw/d}$ (Extreme worst case)

· **Worker (inhalation)**

Inhalation exposure (in mg/m^3)/8h workday: $1.20\text{E}-04$ (highest possible exposure via vapours)

Inhalation exposure (in mg/m^3)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): $12 \text{ mg}/\text{m}^3$, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

· **Environment**

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 23.5

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: $1.18\text{E}+00 \text{ mg/l}$ (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: $1.22\text{E}-01 \text{ mg/l}$ (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: $5.32\text{E}+01 \text{ mg/kg ww}$ (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: $2.79\text{E}+01 \text{ mg/kg ww}$ (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: $1.22\text{E}-02 \text{ mg/l}$ (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: $5.31\text{E}+00 \text{ mg/kg ww}$ (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): $2.6\text{E}-17 \text{ mg}/\text{m}^3$ (Annual average local PEC in air (total))

· **Consumer** Exposure to consumers is not relevant for this scenario.

GB

(Contd. on page 39)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 38)

Annex: Exposure scenario 14

- **Short title of the exposure scenario** Agrochemical (professional and consumer use)
- **Sector of Use**
 - SU1 Agriculture, forestry, fishery
 - SU21 Consumer uses: Private households / general public / consumers
 - SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Product category**
 - PC12 Fertilisers
 - PC0 Other
- **Process category**
 - PROC5 Mixing or blending in batch processes
 - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 - PROC11 Non industrial spraying
- **Environmental release category**
 - ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 13.7 kg
 - Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: n/a
 - Emission days per site: n/a
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
480 cm² (PROC5), 960 cm² (PROC8a), 1500 cm² (PROC11) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: 0.05
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures**
 - Professional use
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: None
 - Customer use
 - Type of PPE (gloves, etc): None (Worst case, as PPE is not generally used)
- **Environmental protection measures**
 - Professional use
 - Onsite pre-treatment of waste water: No
 - Air emission abatement: no
 - Resulting fraction of applied amount in waste gas released to environment: 0
 - Fraction of initially applied amount sent to external waste treatment. This is the sum of direct losses from processes to waste, and the residues from onsite waste water and waste gas treatment.: 0.05

(Contd. on page 40)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 39)

Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)

Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (ESD model for a large industrial location / Default for a standard WWTP)

Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))

Consumer use

Municipal or other type of waste water treatment: Yes (Assume standard municipal WWTP with disposal of sludge by agricultural spreading.)

Effluent (of the waste water treatment plant) discharge rate: 2,000 m³/d (Default for a standard WWTP)

Disposal measures

Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.

Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.

Exposure estimation

Worker (dermal)

Dermal local exposure (long-term): 5000 (PROC11) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)

Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

Worker (inhalation)

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving spraying of liquid product): 21 mg/m³

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 16 mg/m³, equivalent to oral exposure of 2.3 mg/kg bw.d (Stoffenmanager estimate. In the unlikely event that the same individual workers carry out both handling of solid and also spraying, then the filter mask must be worn to manage risks.)

Environment

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): 13.7

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): 156

Consumer

Oral exposure, acute (in mg/kg bw/d): 0.3 (ECETOC TRA consumer tool output for lawn and garden preparations assuming 1% present in formulation (worst case; evidence that in typical formulations the concentration of fosponate is much lower))

Dermal local exposure, acute (in mg/ cm²): 5 (ECETOC TRA consumer tool output for lawn and garden preparations)

Dermal systemic exposure, acute (in mg/kg bw/d): <0.71 (ECETOC TRA consumer tool output for lawn and garden preparations, corrected for 0.1 max uptake factor (60 kg adult))

Inhalation exposure, acute (in mg/m³): No exposure concentration estimated by ECETOC TRA (ECETOC TRA consumer tool output for lawn and garden preparations)

Oral exposure, long-term (in mg/kg bw/d): 0.3 (ECETOC TRA consumer tool output for lawn and garden preparations assuming 1% present in formulation (worst case; evidence that in typical formulations the concentration of fosponate is much lower))

Dermal local exposure, long-term (in mg/ cm² /d): 5 (ECETOC TRA consumer tool output for lawn and garden preparations)

Dermal systemic exposure, long-term (in mg/kg bw/d): <0.71 (ECETOC TRA consumer tool output for lawn and garden preparations, corrected for 0.1 max uptake factor (60 kg adult))

Inhalation exposure, long-term (in mg/m³/day): No exposure concentration estimated by ECETOC TRA. (ECETOC TRA consumer tool output for lawn and garden preparations)

GB

(Contd. on page 41)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 40)

Annex: Exposure scenario 15

- **Short title of the exposure scenario** Manufacture of ceramics
- **Sector of Use**
 - SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
 - SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- **Product category** PC20 Products such as pH-regulators, flocculants, precipitants, neutralization agents
- **Process category**
 - PROC5 Mixing or blending in batch processes
 - PROC26 Handling of solid inorganic substances at ambient temperature
- **Environmental release category** ERC2 Formulation into mixture
- **Conditions of use**
- **Duration and frequency**
 - Used amount of substance per day: 0.24 kg
 - Duration of exposure per day at workplace [for one worker]: up to 8 h (Worst case assumption)
 - Frequency of exposure at workplace [for one worker]: daily
 - Annual amount used per site: ca. 75 kg
 - Emission days per site: 300
- **Worker**
 - Respiration volume under conditions of use: 10 m³/d (Default for workers, light activity)
 - Body weight: 70 kg (Default for workers)
 - Area of skin contact with the substance under conditions of use:
480 cm² (PROC5), 1980 cm² (PROC26) (ECETOC TRA defaults)
- **Environment**
 - Fraction of applied amount lost from process/use to waste gas: Negligible (Releases via air are not anticipated due to the extremely low volatility of the substance.)
 - Fraction of applied amount lost from process/use to waste water: Negligible (Releases are not anticipated due to the high temperature processing involved.)
- **Risk management measures**
- **Worker protection**
- **Technical protective measures**
 - Containment plus good work practice required: Yes
 - Local exhaust ventilation required plus good work practise: No
- **Personal protective measures**
 - Skin protection: Protective gloves
 - Eye protection: Safety glasses
 - Protective clothing: Working clothing worn.
 - Breathing apparatus: None
 - Respiratory protection: None
- **Environmental protection measures**
 - Onsite waste treatment: Yes (settling/ primary sedimentation)
 - Municipal or other type of external waste water treatment: Yes (Understood to be typical, including sites for which the receiving water is marine environment.)
 - Effluent (of the waste water treatment plant) discharge rate: 2000 m³/d (Default for a standard WWTP)
 - Recovery of sludge for agriculture or horticulture: Yes (Sludge may be applied as agricultural fertiliser (default assumption))
- **Disposal measures**
 - Solid wastes are assumed to be collected for chemical disposal or disposed via landfill.
 - Details of the treatment of aqueous waste vary at different sites but as a minimum the effluent treated in either in on-site or municipal secondary biological treatment plants prior to discharge. Such processing is essential for effluent from all sites including those in coastal locations for which the receiving water is estuarine/sea water. This provision is necessary to manage possible risks for the marine environment.
- **Exposure estimation**
- **Worker (dermal)**
 - Dermal local exposure (long-term): 2000 (PROC5) µg/ cm² (Dermal load for worst case PROC only. The use of gloves where applicable is not accounted for in this value)
 - Dermal systemic exposure (long-term): <0.42 mg/kg bw/d (Extreme worst case)

(Contd. on page 42)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 14.03.2023

Version number 23

Revision: 13.01.2023

Trade name: KLC Additiv AS 30

(Contd. of page 41)

- **Worker (inhalation)**

Inhalation exposure (in mg/m³)/8h workday: 1.20E-04 (highest possible exposure via vapours)

Inhalation exposure (in mg/m³)/8h workday (refers only to any contributing tasks involving handling of dusty solid product): 12 mg/m³, equivalent to oral exposure of 1.7 mg/kg bw.d (Stoffenmanager estimate)

- **Environment**

Release from point source to aquatic environment (without STP) (kg/d) (local exposure estimation): Ca. 0.05

Release from point source to aquatic environment (after STP) (kg/d) (local exposure estimation): N/A

Release from point source to air (direct) (kg/d) (local exposure estimation): 0

Release from point source to soil (direct releases only) (kg/d) (local exposure estimation): N/A

Predicted Environmental Concentration (PEC) STP: 2.70E-03 mg/l (PEC for micro organisms in the STP)

Predicted Environmental Concentration (PEC) Freshwater: 8.31E-03 mg/l (Local PEC in surface water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Freshwater sediment: 3.62E+00 mg/kg wwt (Local PEC in fresh-water sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Soil: 6.41E-02 mg/kg wwt (Local PEC in agric. soil (total) averaged over 30 days)

Predicted Environmental Concentration (PEC) Marine water: 1.04E-03 mg/l (Local PEC in marine water during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Marine water sediment: 4.54E-01 mg/kg wwt (Local PEC in marine sediment during emission episode (dissolved))

Predicted Environmental Concentration (PEC) Air (annual average): 7.27E-20 mg/m³ (Annual average local PEC in air (total))

- **Consumer** Exposure to consumers is not relevant for this scenario.

GB

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 1 of 12

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Cooling oil with Corrosion inhibitor

Uses advised against

Any non-intended use.

1.3. Details of the supplier of the safety data sheet**Supplier**

Company name: KAESER Kompressoren SE
Street: Carl- Kaeser- Strasse 26
Place: D-96450 Coburg
Telephone: +49(0)9561/640-0
Responsible Department: sdb.de@kaeser.com

1.4. Emergency telephone number:

Giftinformationszentrum Nord Goettingen + 49 (0) 551 19240 (Poison Information Centre Goettingen)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

This mixture is not classified as hazardous in accordance with Regulation (EC) No 1272/2008.

2.2. Label elements**Regulation (EC) No 1272/2008****Special labelling of certain mixtures**

EUH066 Repeated exposure may cause skin dryness or cracking.
EUH210 Safety data sheet available on request.
60 % of the mixture consists of ingredient(s) of unknown acute toxicity (inhalation).
56,6 % of the mixture consists of ingredient(s) of unknown acute toxicity (dermal).
56,6 % of the mixture consists of ingredient(s) of unknown acute toxicity (oral).
Contains 4,4 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

For information or further instructions, see also section 11 or 12.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
9003-29-6	Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)			>=25 - <=50 %
	Asp. Tox. 1; H304 EUH066			

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 2 of 12

10254-57-6	4,4-Methylene bis(dibutylthiocarbamate)			< 10 %
	233-593-1			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
9003-29-6		Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)	>=25 - <=50 %
		inhalation: LC50 = [>19,17] mg/l (vapours); dermal: LD50 = >2000 mg/kg; oral: LD50 = >10000 mg/kg	
10254-57-6	233-593-1	4,4-Methylene bis(dibutylthiocarbamate)	< 10 %
		dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 16000 mg/kg	

Further Information

Product does not contain listed SVHC substances > 0.1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene):

The substance does not require registration according to Regulation (EC) No 1907/2006 [REACH]. (polymer)

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

Take off immediately all contaminated clothing. Rinse skin with water/shower. In case of skin irritation, consult a physician.

After contact with eyes

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of eye irritation consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs. Never give anything by mouth to an unconscious person or a person with cramps. When in doubt or if symptoms are observed, get medical advice.

4.2. Most important symptoms and effects, both acute and delayed

After eye contact: No information available.

Inhalation: No information available.

Skin contact: Has de-greasing effect on the skin.

ingestion.: No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 3 of 12

Suitable extinguishing media

In case of fire:

Carbon dioxide (CO₂)

Dry extinguishing powder

Foam

In case of major fire and large quantities:

Water spray jet

Unsuitable extinguishing media

High power water jet

5.2. Special hazards arising from the substance or mixture

Can be released in case of fire: Carbon dioxide (CO₂). Carbon monoxide. Nitrogen oxides (NO_x). Sulfur oxides.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. In case of fire and/or explosion do not breathe fumes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Use water spray jet to protect personnel and to cool endangered containers.

Co-ordinate fire-fighting measures to the fire surroundings.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Avoid contact with skin, eyes and clothes.

For non-emergency personnel

Wear personal protection equipment (refer to section 8).

For emergency responders

No special precautionary measures are necessary.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). Cover drains.

6.3. Methods and material for containment and cleaning up**For containment**

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up

Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Do not breathe vapour/aerosol. Avoid contact with skin, eyes and clothes.

Wear personal protection equipment (refer to section 8).

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 4 of 12

Advice on protection against fire and explosion

Usual measures for fire prevention.

Further information on handling

General protection and hygiene measures: See section 8.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed and in a well-ventilated place.

Keep only in original container.

Make sure spills can be contained, e.g. in sump pallets or kerbed areas.

Hints on joint storage

Do not store together with: Gas. Explosive hazardous substances. Oxidising substances (solid). Oxidising substances (liquid). Radioactive substances. Infectious substances.

Keep away from food, drink and animal feedingstuffs.

Further information on storage conditions

Protect against: UV-radiation/sunlight. Heat.

7.3. Specific end use(s)

refer to section 1.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Additional advice on limit values**

Air limit values:

Possibility of exposure to Aerosol (Mineral oil)

Limit value (TLV-TWA) = 5 mg/m³ - Source: ACGIHLimit value (TLV-STEL) = 10 mg/m³ - Source: ACGIH

STEL: short-term exposure limits

TLV: Threshold Limiting Value

TWA: time weighted average

ACGIH: American Conference of Governmental Industrial Hygienists

Recommended monitoring procedures:

DIN-/EN-Norms: EN 689, EN 14042, EN 482

8.2. Exposure controls**Appropriate engineering controls**

Vapours / aerosols should be extracted by suction directly at point of origin.

Protective and hygiene measures

Always close containers tightly after the removal of product. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Take off contaminated clothing.

Do not put any product-impregnated cleaning rags into your trouser pockets.

Eye/face protection

Recommended eye protection articles: Eye glasses with side protection. EN 166

Hand protection

In case of prolonged or frequently repeated skin contact: Wear suitable gloves. EN 374

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 5 of 12

Suitable material: NBR (Nitrile rubber).

Thickness of the glove material: 0,35 mm

Breakthrough time > 480 min.

Check leak tightness/impermeability prior to use. Breakthrough times and swelling properties of the material must be taken into consideration.

Skin protection

Protective clothing. DIN-/EN-Norms: 469

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

Generation/formation of aerosols

Recommended respiratory protection articles: Combination filtering device (EN 14387). type: AP-2/3

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

Environmental exposure controls

Do not allow uncontrolled discharge of product into the environment.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	Light yellow - colourless
Odour:	Characteristic

pH-Value:

Test result	Test method
Not determined	Not applicable

Changes in the physical state

Melting point/freezing point:

Not determined	Not applicable
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Boiling point or initial boiling point and boiling range:

Not determined	Not applicable
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Pour point:

Not determined	Not applicable
----------------	----------------

Flash point:

252 °C

Sustaining combustion:

No data available	Not applicable
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Flammability

Solid/liquid:

Not applicable

Explosive properties

none

Lower explosion limits:

Not determined

Upper explosion limits:

Not determined

Auto-ignition temperature:

Not determined Not applicable

Self-ignition temperature

Gas:

Not determined

Decomposition temperature:

Not determined Not applicable

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 6 of 12

Oxidizing properties

none

Vapour pressure: 0,1 hPa Not applicable
(at 25 °C)

Vapour pressure:

Density (at 15 °C): 0,873 g/cm³ Not known

Bulk density: The product has not been tested. Not applicable

Water solubility: not miscible Not applicable

Solubility in other solvents

Not determined

Partition coefficient n-octanol/water: The product has not been tested.

Viscosity / dynamic: Not determined Not applicable

Viscosity / kinematic: 246 - 276 mm²/s Not known
(at 40 °C)

Flow time: Not determined Not applicable

Relative vapour density: >1[Air=1] Not known

Evaporation rate: Not determined Not applicable

Solvent separation test: Not determined

Solvent content: Not determined

9.2. Other information

Solid content: Not determined

SECTION 10: Stability and reactivity**10.1. Reactivity**

No information available.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

Reacts with : Oxidizing agents, strong.

10.4. Conditions to avoid

UV-radiation/sunlight. Heat

10.5. Incompatible materials

Oxidizing agents, strong.

10.6. Hazardous decomposition productsCan be released in case of fire: Carbon dioxide (CO₂). Carbon monoxide. Nitrogen oxides (NO_x). Sulfur oxides.**SECTION 11: Toxicological information****11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Toxicokinetics, metabolism and distribution**

No information available.

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name
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KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 7 of 12

	Exposure route	Dose	Species	Source	Method
9003-29-6	Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)				
	oral	LD50 >10000 mg/kg	Rat	ECHA Dossier	OECD 401
	dermal	LD50 >2000 mg/kg	Rat	ECHA Dossier	OECD 402
	inhalation (4 h) vapour	LC50 >19,17 mg/l	Rat	ECHA Dossier	EPA OPPTS 870.1300
10254-57-6	4,4-Methylene bis(dibutylthiocarbamate)				
	oral	LD50 > 16000 mg/kg	Rat	ECHA Dossier	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rabbit	ECHA Dossier	

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene):

Serious eye damage/eye irritation:

Method: OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Species: Rabbit

Result / evaluation: Not an irritant. Literature information: ECHA Dossier

Sensitising effects

Based on available data, the classification criteria are not met.

Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene):

Skin sensitisation:

Method: OECD Guideline 406

Species: Guinea pig

Result / evaluation: not sensitising. Literature information: ECHA Dossier

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene):

In-vitro mutagenicity:

Method: OECD Guideline 471, OECD Guideline 473

Result: negative. Literature information: ECHA Dossier

In-vivo mutagenicity:

Method: OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Result: negative. Literature information: ECHA Dossier

Reproductive toxicity:

Method: OECD Guideline 421

Species: Rat. Exposure route: oral.

Result: NOAEL (P) = 1000 mg/kg. NOAEL (F1) = 1000 mg/kg. Literature information: ECHA Dossier

Developmental toxicity/teratogenicity:

Method: OECD Guideline 422

Species: Rat. Exposure route: oral.

Result: NOAEL > 1000 mg/kg. Literature information: ECHA Dossier

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Repeated exposure may cause skin dryness or cracking.

Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene):

Subchronic oral toxicity:

Method: OECD Guideline 408

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 8 of 12

Species: Rat
 Exposure time: 90 d.
 Result: NOAEL \geq 1000 mg/kg; Literature information: ECHA Dossier
 Subchronic inhalation toxicity:
 Method: -
 Species: Rat
 Exposure time: OECD Guideline 413
 Result / evaluation: NOEC = 1000 mg/m³. Literature information: ECHA Dossier

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

There are no data available on the preparation/mixture itself.

11.2. Information on other hazards
Endocrine disrupting properties

No information available.

SECTION 12: Ecological information
12.1. Toxicity

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
9003-29-6	Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)					
	Acute algae toxicity	ErC50 mg/l	>19,2	72 h	Desmodesmus subspicatus (OECD 201)	ECHA Dossier OECD 201
10254-57-6	4,4-Methylene bis(dibutylthiocarbamate)					
	Acute fish toxicity	LL50 mg/l	> 0,06	96 h	Oncorhynchus mykiss	ECHA Dossier OECD Guideline 203
	Acute algae toxicity	ErC50 mg/l	> 0,033	72 h	Desmodesmus subspicatus	ECHA Dossier OECD Guideline 201
	Acute crustacea toxicity	EL50 mg/l	> 0,052	48 h	Daphnia magna	ECHA Dossier OECD Guideline 202
	Fish toxicity	NOEC mg/l	>0,2	28 d	Pimephales promelas	ECHA Dossier OECD Guideline 210
	Crustacea toxicity	NOEC mg/l	\geq 0,247	21 d	Daphnia magna	ECHA Dossier OECD Guideline 211
	Acute bacteria toxicity	(EC50 mg/l)	> 1000	3 h	activated sludge of a predominantly domestic sewage	ECHA Dossier OECD Guideline 209

12.2. Persistence and degradability

Some of the components are poorly biodegradable. The statement is derived from the properties of the single components.

Due to its low solubility in water the product is almost completely mechanically separated in biological sewage plants.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
9003-29-6	Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)			
	OECD Guideline 310	93,9 %	28	ECHA Dossier
	Easily biodegradable (concerning to the criteria of the OECD)			

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 9 of 12

12.3. Bioaccumulative potential**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
9003-29-6	Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)	7,6-7,8
10254-57-6	4,4-Methylene bis(dibutyldithiocarbamate)	8,42

BCF

CAS No	Chemical name	BCF	Species	Source
9003-29-6	Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene)	920-3340	Carp	ECHA Dossier
10254-57-6	4,4-Methylene bis(dibutyldithiocarbamate)	2,832		Software (2010)

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal. Non-contaminated packages may be recycled. According to (EWC) European Waste Catalogue, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Waste codes/waste designations according to (EWC) European Waste Catalogue

List of Wastes Code - residues/unused products

130206 OIL WASTES AND WASTES OF LIQUID FUELS (EXCEPT EDIBLE OILS, AND THOSE IN CHAPTERS 05, 12 AND 19); waste engine, gear and lubricating oils; synthetic engine, gear and lubricating oils; hazardous waste

List of Wastes Code - used product

130206 OIL WASTES AND WASTES OF LIQUID FUELS (EXCEPT EDIBLE OILS, AND THOSE IN CHAPTERS 05, 12 AND 19); waste engine, gear and lubricating oils; synthetic engine, gear and lubricating oils; hazardous waste

List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 10 of 12

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number:	No dangerous good in sense of these transport regulations.
14.2. UN proper shipping name:	No dangerous good in sense of these transport regulations.
14.3. Transport hazard class(es):	No dangerous good in sense of these transport regulations.
14.4. Packing group:	No dangerous good in sense of these transport regulations.

Inland waterways transport (ADN)

14.1. UN number:	No dangerous good in sense of these transport regulations.
14.2. UN proper shipping name:	No dangerous good in sense of these transport regulations.
14.3. Transport hazard class(es):	No dangerous good in sense of these transport regulations.
14.4. Packing group:	No dangerous good in sense of these transport regulations.

Marine transport (IMDG)

14.1. UN number:	No dangerous good in sense of these transport regulations.
14.2. UN proper shipping name:	No dangerous good in sense of these transport regulations.
14.3. Transport hazard class(es):	No dangerous good in sense of these transport regulations.
14.4. Packing group:	-

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	No dangerous good in sense of these transport regulations.
14.2. UN proper shipping name:	No dangerous good in sense of these transport regulations.
14.3. Transport hazard class(es):	No dangerous good in sense of these transport regulations.
14.4. Packing group:	-

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	No
Danger releasing substance:	Not relevant

14.6. Special precautions for user

See section 8.

14.7. Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 52

2010/75/EU (VOC):	Not determined
2004/42/EC (VOC):	Not determined
Information according to 2012/18/EU (SEVESO III):	Not subject to 2012/18/EU (SEVESO III)

Additional information

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

REACH 1907/2006 appendix XVII: 52 (1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich)

KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010, 831057.00020)

Revision date: 19.04.2023

Page 11 of 12

National regulatory information

Water hazard class (D): 2 - obviously hazardous to water

Additional information

*Butene, homopolymer (products derived from either/or But-1-ene/But-2-ene) - not listed.

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

SECTION 16: Other information**Changes**

Rev. 11.00; 29.05.2015, Initial release

Rev. 12.00: 24.11.2017; Changes in chapter: 1-16

Rev. 12,10: 01.10.2018; Changes in chapter: 3

Rev. 13,00: 19.04.2023; Changes in chapter: 2, 3, 6, 8, 9, 11, 12, 15, 16

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

CAS: Chemical Abstracts Service

CLP: Classification, Labelling and Packaging of substances and mixtures

DNEL: Derived No Effect Level

d: day(s)

EINECS: European INventory of Existing Commercial chemical Substances

ELINCS: European List of Notified Chemical Substances

ECHA: European Chemicals Agency

EWC: European Waste Catalogue

IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)

h: hour

LOAEL: Lowest observed adverse effect level

LOAEC: Lowest observed adverse effect concentration

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NOAEL: No observed adverse effect level

NOAEC: No observed adverse effect concentration

NLP: No-Longer Polymers

N/A: not applicable

OECD: Organisation for Economic Co-operation and Development

PNEC: predicted no effect concentration

PBT: Persistent bioaccumulative toxic

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail

REACH: Registration, Evaluation, Authorisation of Chemicals

SVHC: substance of very high concern

TRGS: Technische Regeln für Gefahrstoffe

UN: United Nations

VOC: Volatile Organic Compounds

**KAESER OMEGA FLUID SB 220 (894344.0, 894344.00020, 831057.0, 831057.00010,
831057.00020)**

Revision date: 19.04.2023

Page 12 of 12

Relevant H and EUH statements (number and full text)

H304	May be fatal if swallowed and enters airways.
EUH066	Repeated exposure may cause skin dryness or cracking.
EUH210	Safety data sheet available on request.

Further Information

Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure:

Health hazards: Calculation method.

Environmental hazards: Calculation method.

Physical hazards: On basis of test data and / or calculated. and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier

- Trade name **KLC Prowaclean 6 XL**

- UFI: H800-P0UR-J00A-TADA

- 1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

- Application of the substance / the mixture

Alkaline cleaner/ detergent

Restrictions on use apply to this product according to Regulation (EU) no. 1907/2006 Annex XVII (see section 15)

- 1.3 Details of the supplier of the safety data sheet

- Manufacturer/Supplier:

KMU LOFT Cleanwater SE

-Betriebsstätte Hausen-

Krummattstraße 4

D-79688 Hausen im Wiesental

Tel.: 07622/66696-0

Fax: 07622/66696-20

- Informing department: sdb@kmu-loft.de

- 1.4 Emergency telephone number:

Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture

- Classification according to Regulation (EC) No 1272/2008

Met. Corr. 1 H290 May be corrosive to metals.

Acute Tox. 4 H302 Harmful if swallowed.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- 2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

- Hazard pictograms



GHS05 GHS07

- Signal word Danger

- Hazard statements

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

- Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 1)

*P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.**P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].**P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**P312 Call a POISON CENTER/doctor if you feel unwell.***- 2.3 Other hazards****- Results of PBT and vPvB assessment****- PBT:** Not applicable.**- vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Mixtures**- Description:** Mixture of the substances listed below with harmless additions (aqueous solution).**- Dangerous components:**

CAS: 1310-58-3 EINECS: 215-181-3 Index number: 019-002-00-8 Reg.nr.: 01-2119487136-33	potassium hydroxide Met. Corr. 1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318; Acute Tox. 4, H302 Specific concentration limits: Skin Corr. 1A; H314: $C \geq 5\%$ Skin Corr. 1B; H314: $2\% \leq C < 5\%$ Skin Irrit. 2; H315: $0.5\% \leq C < 2\%$ Eye Irrit. 2; H319: $0.5\% \leq C < 2\%$	25-50%
CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 Reg.nr.: 01-2119457892-27	sodium hydroxide Met. Corr. 1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318 Specific concentration limits: Skin Corr. 1A; H314: $C \geq 5\%$ Skin Corr. 1B; H314: $2\% \leq C < 5\%$ Skin Irrit. 2; H315: $0.5\% \leq C < 2\%$ Eye Irrit. 2; H319: $0.5\% \leq C < 2\%$	≥ 3 -<5%
	Polyglykosid Eye Dam. 1, H318	≥ 1 -<2.5%

- Regulation (EC) No 648/2004 on detergents / Labelling for contents

non-ionic surfactants, phosphonates

<5%

- Additional information For the wording of the listed hazard phrases refer to section 16.**- Composition/Ingredients**

Constituents according to EC-Regulation 648/2004:

< 5 % non-ionic surfactants,

< 5 % phosphonates

weitere Inhaltsstoffe: Alkalihydroxide, Lösungsvermittler und Hilfsstoffe.

SECTION 4: First aid measures

- 4.1 Description of first aid measures**- General advice:**

Instantly remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

In case of unconsciousness bring patient into stable side position for transport.

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 2)

- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, seek medical advice.
- **After eye contact**
Rinse immediately opened eye for several minutes under running water. Then consult doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; instantly call for medical help.
- **4.2 Most important symptoms and effects, both acute and delayed**
Burning and pain of the eyes, skin and mucous membranes. After swallowing, strong irritant effect on the oral cavity and pharynx as well as danger of perforation of the oesophagus.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **5.2 Special hazards arising from the substance or mixture**
Reacts with light alloys forming readily flammable hydrogen.
- **5.3 Advice for firefighters**
- **Protective equipment:**
See section 8.
Wear full protective suit with self-contained breathing apparatus.
- **Additional information**
Endangered containers in the surrounding area should be cooled with a water-hose.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment and keep unprotected persons away.
- **6.2 Environmental precautions:**
Do not allow to enter drainage system, surface or ground water.
Dilute with much water.
If large amounts are released, the authorities must be informed.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
Use neutralising agent.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Keep containers tightly sealed.
Avoid contact with eyes and skin.
Prevent formation of aerosols.

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 3)

- **Information about protection against explosions and fires:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage** Store in cool, dry conditions in well sealed containers.
- **Requirements to be met by storerooms and containers:**
Observe official regulations on storage and handling of water hazardous substances
Store in original containers or in PE-containers.
Do not use light alloy containers.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Storage class** 8 B L (VCI - Konzept, 2007)
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Components with critical values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- DNELs

1310-58-3 potassium hydroxide

Inhalative	DNEL (worker)	1 mg/m ³ (Long-term - local effects)
	DNEL (population)	1 mg/m ³ (Long-term - local effects)

1310-73-2 sodium hydroxide

Inhalative	DNEL (worker)	1 mg/m ³ (Long-term - local effects) (most sensitive endpoint: Irritation)
	DNEL (population)	1 mg/m ³ (Long-term - local effects)

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures**
Keep away from food, beverages and fodder.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Gases, fumes and aerosols should not be inhaled.
- **Breathing equipment:**
Not necessary if room is well-ventilated.
Use breathing protection only when aerosol or mist is formed.
- **Hand protection**
Protective gloves (EN 374).
Alkaline resistant gloves
- **Material of gloves**
Butylrubber, BR, recommended thickness of the material: ≥ 0.5 mm, penetration time: ≥ 480 min.
Nitrile rubber, NBR, recommended thickness of the material: ≥ 0.35 mm, penetration time: ≥ 480 min.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
Material of gloves is recommended for a short-term single use to protect from splashes. For permanent usage contact manufacturer of gloves.
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye/face protection** Tightly sealed safety glasses.

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 4)

- Body protection:

Standard protective working clothes. If skin contact is possible, wear impenetrable protective clothing.

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties**- General Information**

- Colour:	Yellow-brown
- Smell:	Not characteristic
- Melting point/freezing point:	Not determined
- Boiling point or initial boiling point and boiling range	>100 °C
- Flash point:	>100 °C
- pH at 20 °C	12.5
- pH-value:	
- Viscosity:	
- Kinematic viscosity	Not determined.
- dynamic:	Not determined.
- Solubility	
- Water:	Fully miscible
- Vapour pressure at 20 °C:	23 hPa (7732-18-5 water, distilled, conductivity or of similar purity)
- Density and/or relative density	
- Density at 20 °C	1.33 g/cm ³

- 9.2 Other information

- Appearance:	
- Form:	Fluid
- Important information on protection of health and environment, and on safety.	
- Self-inflammability:	Product is not selfigniting.
- Explosive properties:	Product is not potentially explosive

- Information with regard to physical hazard classes

- Explosives	Void
- Flammable gases	Void
- Aerosols	Void
- Oxidising gases	Void
- Gases under pressure	Void
- Flammable liquids	Void
- Flammable solids	Void
- Self-reactive substances and mixtures	Void
- Pyrophoric liquids	Void
- Pyrophoric solids	Void
- Self-heating substances and mixtures	Void
- Substances and mixtures, which emit flammable gases in contact with water	Void
- Oxidising liquids	Void
- Oxidising solids	Void
- Organic peroxides	Void
- Corrosive to metals	
May be corrosive to metals.	

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 5)

- **Desensitised explosives**

Void

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Strong exothermic reaction with acids
Reacts with light alloys to form hydrogen
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:**
base metals
bases
- **10.6 Hazardous decomposition products:**
Reaction in contact with metal forming hydrogen.
Reaction with ammonium compounds forming ammonia.
- **Additional information:**
The product reacts with airborne carbon dioxide forming potassium carbonate or sodium hydrogen carbonate.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

- **Acute toxicity**
Harmful if swallowed.

- **LD/LC50 values that are relevant for classification:**

1310-58-3 potassium hydroxide

Oral LD50 >300 mg/kg (rat)

- **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

- **Endocrine disrupting properties**

None of the ingredients is listed.

EUE

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 6)

SECTION 12: Ecological information

- 12.1 Toxicity

- Aquatic toxicity:

1310-58-3 potassium hydroxide

LC 50 / 96 h	45.4 mg/l (Oncorhynchus mykiss)
	80 mg/l (Gambusia affinis)
EC 50 / 48 h	40 mg/l (Aquatic invertebrates)
	40.4 mg/l (Ceriodaphnia dubia)

1310-73-2 sodium hydroxide

LC 50 / 96 h	196 mg/l (fish)
EC 50 / 48 h	40.4 mg/l (shellfish)

- 12.2 Persistence and degradability

The surfactant(s) contained in this preparation complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

- 12.3 Bioaccumulative potential No further relevant information available.

- 12.4 Mobility in soil No further relevant information available.

- 12.5 Results of PBT and vPvB assessment

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- 12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

- 12.7 Other adverse effects

- **Remark:** Harmful effect on fish, plankton and other waterorganism by pH shift possible.

- **Behaviour in sewage processing plants:** No inhibition of bacterial activity after neutralisation.

- Additional ecological information:

- General notes:

Do not allow to enter drainage system, surface or ground water

Water hazard class 1 (Self-assessment): slightly hazardous for water.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods

The following advice is related to new material and not to any processed products. In case of a mixture with other products other disposal methods may become necessary. If in doubt seek advice from product supplier or from local authorities.

- Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Waste disposal key number:

Since 01/01/99 the waste code numbers have not only been product-related but are also essentially application-related. The valid waste code number of the application can be obtained from the European waste catalogue.

- **Uncleaned packagings:** Disposal must be made according to official regulations.

- Recommendation:

Containers may be completely emptied and cleaned and send to be reconditioned or recycled.

— EUE —

(Contd. on page 8)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 7)

SECTION 14: Transport information

- 14.1 UN number or ID number - ADR/RID, IMDG, IATA	UN1719
- 14.2 UN proper shipping name - ADR/RID - IMDG, IATA	1719 CAUSTIC ALKALI LIQUID, N.O.S. (POTASSIUM HYDROXIDE, SODIUM HYDROXIDE) CAUSTIC ALKALI LIQUID, N.O.S. (POTASSIUM HYDROXIDE)
- 14.3 Transport hazard class(es) - ADR/RID - Class - Label	8 (C5) Corrosive substances. 8
- IMDG, IATA - Class - Label	8 Corrosive substances. 8
- 14.4 Packing group - ADR/RID, IMDG, IATA	II
- 14.5 Environmental hazards: - Marine pollutant:	Not applicable. No
- 14.6 Special precautions for user - Kemler Number: - EMS Number: - Segregation groups - Stowage Category - Segregation Code	Warning: Corrosive substances. 80 F-A, S-B Alkalis A SG22 Stow "away from" ammonium salts SG35 Stow "separated from" SGG1-acids
- 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
- Transport/Additional information:	
- ADR/RID - Limited quantities (LQ) - Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
- IMDG - Limited quantities (LQ) - Excepted quantities (EQ)	1L Código E4 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
- UN "Model Regulation":	UN 1719 CAUSTIC ALKALI LIQUID, N.O.S. (POTASSIUM HYDROXIDE, SODIUM HYDROXIDE), 8, II

EUE

(Contd. on page 9)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name KLC Prowaclean 6 XL

(Contd. of page 8)

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger

- **Hazard statements**

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

- **Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a POISON CENTER/doctor if you feel unwell.

- **Directive 2012/18/EU**

- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

- **REGULATION (EU) 2019/1148**

- **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

- **National regulations**

- **Information about limitation of use:**

Employment restrictions concerning young persons must be observed.

- **Other regulations, limitations and prohibitive regulations**

- **Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients is listed.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

— EUE —

(Contd. on page 10)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 11.01.2023

Version number 112.17 (replaces version 112.16)

Revision: 11.01.2023

Trade name **KLC Prowaclean 6 XL**

(Contd. of page 9)

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- UFI market placements:

Germany (DE)
Austria (AT)
Italy (IT)
Spain (ES)
Czech Republic (CZ)

- Relevant phrases

Complete wording of hazard statements and risk phrases (H- and R-phrases) mentioned in section 3. These phrases refer to the constituents. The labelling for this product is stated in section 2.

- Department issuing data specification sheet: see item 1: Informing department

- Date of previous version: 07.12.2022

- Version number of previous version: 112.16

- Abbreviations and acronyms:

RPE: Respiratory Protective Equipment
RCR: Risk Characterisation Ratio (RCR= PEC/PNEC)
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CLP: Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
TRGS: Technische Regeln für Gefahrstoffe (Technical Rules for Dangerous Substances, BAuA, Germany)
DNEL: Derived No-Effect Level (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Met. Corr. 1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

- * Data compared to the previous version altered.

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

* SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier

- Trade name **KLC Prowaclean 8 XL**

- UFI: 6C00-60J4-U00T-GNYD

- 1.2 Relevant identified uses of the substance or mixture and uses advised against

- Restrictions on use:

Restrictions on use apply to this product according to Regulation (EU) no. 1907/2006 Annex XVII (see section 15)

- Application of the substance / the mixture Deliming agent

- 1.3 Details of the supplier of the safety data sheet

- Manufacturer/Supplier:

KMU LOFT Cleanwater SE

-Betriebsstätte Hausen-

Krummattstraße 4

D-79688 Hausen im Wiesental

Tel.: 07622/66696-0

Fax: 07622/66696-20

- Informing department: sdb@kmu-loft.de

- 1.4 Emergency telephone number:

Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

* SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture

- Classification according to Regulation (EC) No 1272/2008

Met. Corr.1 H290 May be corrosive to metals.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

- 2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

- Hazard pictograms



GHS05

- Signal word Danger

- Hazard-determining components of labelling:

sulphamidic acid

- Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

- Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 IF ON SKIN: Wash with plenty of water.

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 1)

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P406 Store in a corrosion resistant container / container with a resistant inner liner.

P502 Refer to manufacturer or supplier for information on recovery or recycling.

- 2.3 Other hazards

- Results of PBT and vPvB assessment

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Determination of endocrine-disrupting properties** Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Mixtures

- **Description:** Mixture of the substances listed below with harmless additions

- Dangerous components:

CAS: 77-92-9 EINECS: 201-069-1 Reg.nr.: 01-2119457026-42	citric acid Eye Irrit. 2, H319; STOT SE 3, H335 substance with a Community workplace exposure limit	≥10-<20%
CAS: 5329-14-6 EINECS: 226-218-8 Reg.nr.: 01-2119488633-28	sulphamidic acid Skin Irrit. 2, H315; Eye Irrit. 2, H319; Aquatic Chronic 3, H412	≥10-<25%

- SVHC

This preparation does not contain any substances of very high concern (SVHC) in a concentration of ≥ 0.1 % according to Regulation (EC) 1907/2006, Article 57.

- **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures

- **General advice:** Instantly remove any clothing soiled by the product.

- **After inhalation** Supply fresh air; consult doctor in case of symptoms.

- After skin contact

Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, seek medical advice.

- After eye contact

Rinse immediately opened eye for several minutes under running water. Then consult doctor.

- After swallowing

Rinse out mouth and then drink plenty of water.

Call a doctor immediately.

- 4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

- 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

- 5.2 Special hazards arising from the substance or mixture

Can be released in case of fire:

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name **KLC Prowaclean 8 XL**

(Contd. of page 2)

sulphur oxides (SO_x)

Ammonia vapours

carbon monoxide (CO)

carbon dioxide (CO₂)**- 5.3 Advice for firefighters****- Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing.

Avoid eye and skin contact.

Ensure adequate ventilation

- 6.2 Environmental precautions:

Do not allow product to reach sewage system or water bodies.

Inform respective authorities in case product reaches water or sewage system.

- 6.3 Methods and material for containment and cleaning up:

Dam up large quantities and pump in product resistant container; absorb remains with absorptive material and dispose according to regulations.

Flush away small remains with water. Dispose waste water according to regulations.

Small spillages: absorb with sand, earth and collect into containers for disposal.

Dispose of contaminated material as waste according to item 13.

- 6.4 Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling Keep containers tightly sealed.**- Information about protection against explosions and fires:** No special measures required.**- 7.2 Conditions for safe storage, including any incompatibilities****- Storage****- Requirements to be met by storerooms and containers:**

Observe official regulations on storage and handling of water hazardous substances

Store only in the original container.

- Further information about storage conditions: Protect from frost.**- 7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- 8.1 Control parameters**- Components with critical values that require monitoring at the workplace:****77-92-9 citric acid**

AGW (Germany)	Long-term value: 2 E mg/m ³ 2(l);DFG, Y
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(Contd. on page 4)

EUE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 3)

- DNELs		
5329-14-6 sulphamidic acid		
Oral	DNEL (population)	5 mg/kg bw/day (Long-term, systemic effects)
Dermal	DNEL (worker)	10 mg/kg bw/day (Long-term, systemic effects)
	DNEL (population)	5 mg/kg bw/day (Long-term, systemic effects)
Inhalative	DNEL (worker)	70,5 mg/m ³ (Long-term, systemic effects)
	DNEL (population)	17,4 mg/m ³ (Long-term, systemic effects)
- PNECs		
5329-14-6 sulphamidic acid		
PNEC water	0,48 mg/l (intermittent releases)	
	1,8 mg/l (freshwater)	
	0,18 mg/l (marine water)	
	20 mg/l (sewage plant)	
PNEC sediment	8,36 mg/kg dw (freshwater)	
	0,84 mg/kg dw (marine water)	
PNEC soil	5 mg/kg dw (soil)	
PNEC sediment	0,173 mg/kg (freshwater)	
	0,0173 mg/kg (marine water)	
PNEC soil	0,00638 mg/kg (soil)	

- 8.2 Exposure controls**- Individual protection measures, such as personal protective equipment****- General protective and hygienic measures**

Keep away from food, beverages and fodder.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

- Breathing equipment:

Use breathing protection only when aerosol or mist is formed.

Bei Nebelbildung Atemschutz-Filtergerät verwenden.

- Recommended filter device for short term use: Combination filter A-P2**- Hand protection** Acid resistant gloves**- Material of gloves**

Nitrile rubber, NBR

Recommended thickness of the material: $\geq 0,5$ mm

Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und vom Hersteller zu Hersteller unterschiedlich. Die Handschuhe sollten in jedem Fall CE-genehmigt sein.

- Penetration time of glove material

Material of gloves is recommended for a short-term single use to protect from splashes. For permanent usage contact manufacturer of gloves.

Change gloves if notice sign of disenchantment.

- Eye/face protection Eye glasses with side protection (EN 166)**- Body protection:**

Standard protective working clothes. If skin contact is possible, wear impenetrable protective clothing.

— EUE —

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 4)

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties

- General Information

- Physical state	Fluid
- Colour:	Colourless
- Smell:	Odourless
- Odour threshold:	Not determined.
- Melting point/freezing point:	Not determined
- Boiling point or initial boiling point and boiling range	Not determined
- Flammability	Not applicable.
- Lower and upper explosion limit	
- Lower:	Not determined.
- Upper:	Not determined.
- Flash point:	345 °C
- Decomposition temperature:	Not determined.
- pH at 20 °C	2
- pH-value:	
- Viscosity:	
- Kinematic viscosity	Not determined.
- dynamic:	Not determined.
- Solubility	
- Water:	Fully miscible
- Partition coefficient n-octanol/water (log value)	Not determined.
- Vapour pressure at 20 °C:	23 hPa (7732-18-5 water, distilled, conductivity or of similar purity)
- Density and/or relative density	
- Density at 20 °C	1,137 g/cm ³
- Relative density	Not determined.
- Vapour density	Not determined.

- 9.2 Other information

- Appearance:	
- Form:	Fluid
- Important information on protection of health and environment, and on safety.	
- Self-inflammability:	Product is not selfigniting.
- Explosive properties:	Product is not potentially explosive
- Evaporation rate	Not determined.

- Information with regard to physical hazard classes

- Explosives	Void
- Flammable gases	Void
- Aerosols	Void
- Oxidising gases	Void
- Gases under pressure	Void
- Flammable liquids	Void
- Flammable solids	Void
- Self-reactive substances and mixtures	Void
- Pyrophoric liquids	Void
- Pyrophoric solids	Void

(Contd. on page 6)

EUE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 5)

- Self-heating substances and mixtures	Void
- Substances and mixtures, which emit flammable gases in contact with water	Void
- Oxidising liquids	Void
- Oxidising solids	Void
- Organic peroxides	Void
- Corrosive to metals	May be corrosive to metals.
- Desensitised explosives	Void

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** Exotherme Reaktion mit Alkalien.
- **10.6 Hazardous decomposition products:**
Thermal decomposition may form sulfur dioxide SO₂, ammonia NH₃ and nitrous gases.
Formation of carbon monoxide and carbon dioxide in case of fire.

* SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

- LD/LC50 values that are relevant for classification:

77-92-9 citric acid

Oral	LD50	>11.700 mg/kg (rat) (OECD 401)
		3.000 mg/kg (rat)
		5.040 mg/kg (mouse)
Dermal	LD50	>2.000 mg/kg (rat)

5329-14-6 sulphamidic acid

Oral	LD50	3.160 mg/kg (rat)
Dermal	LD50	>2.000 mg/kg (rat) (OECD 402)

- **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
Causes severe skin burns and eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

(Contd. on page 7)

EUE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 6)

- 11.2 Information on other hazards

- Endocrine disrupting properties

None of the ingredients is listed.

* SECTION 12: Ecological information

- 12.1 Toxicity

- Aquatic toxicity:

77-92-9 citric acid

LC 50 / 96 h	440-760 mg/l (Leuciscus idus)
LC 50 / 48 h	440 mg/l (Leuciscus idus) (OECD 203 (Acute toxicity - fish))
LC 50 / 24 h	1.535 mg/l (Daphnia magna) (OECD 202)
EC 50 / 24 h	440 mg/l (Leuciscus idus)
	1.535 mg/l (Daphnia)
EC 50 / 16 h	10.000 mg/l (Pseudomonas putida)
EC 50 / 72 h	120 mg/l (Daphnia magna)
	425 mg/l (Algae)

5329-14-6 sulphamidic acid

LC 50 / 96 h	70,3 mg/l (Pimephales promelas) (OECD 203 (Acute toxicity - fish))
EC 50 / 48 h	48 mg/l (Algae) (OECD 201)
EC 50 / 24 h	71,9 mg/l (Daphnia magna) (OECD 202)

- 12.2 Persistence and degradability

77-92-9 citric acid

Biodegradability	100 % (OECD 301 E)
	98 % (OECD 302 B) (2 d)
CSB	728 mg O ₂ /g
BSB	526 mg O ₂ /g

- 12.3 Bioaccumulative potential No further relevant information available.

- 12.4 Mobility in soil No further relevant information available.

- 12.5 Results of PBT and vPvB assessment

- PBT: Not applicable.

- vPvB: Not applicable.

- 12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

- 12.7 Other adverse effects

- Respiratory inhibition of communal activated sludge EC 20 (mg/l according to ISO 8192 B):

77-92-9 citric acid

EC 0	640 mg/l (Scenedesmus quadricauda) (7d)
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- Additional ecological information:

- General notes:

Do not allow to enter drainage system, surface or ground water

Water hazard class 1 (Self-assessment): slightly hazardous for water.

— EUE —

(Contd. on page 8)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 7)

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods

- Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Waste disposal key number:

Since 01/01/99 the waste code numbers have not only been product-related but are also essentially application-related. The valid waste code number of the application can be obtained from the European waste catalogue.

- European waste catalogue

16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 10 00	aqueous liquid wastes destined for off-site treatment
16 10 01*	aqueous liquid wastes containing hazardous substances

- Uncleaned packagings:

- Recommendation:

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

- Recommended cleaning agent:

Water, if necessary with cleaning agent.
z.B. Aktivschaumreiniger, neutral

SECTION 14: Transport information

- 14.1 UN number or ID number

- ADR/RID/ADN, IMDG, IATA UN1760

- 14.2 UN proper shipping name

- ADR/RID/ADN 1760 CORROSIVE LIQUID, N.O.S. (SULPHAMIC ACID)
- IMDG, IATA CORROSIVE LIQUID, N.O.S. (SULPHAMIC ACID)

- 14.3 Transport hazard class(es)

- ADR/RID/ADN

- Class 8 (C9) Corrosive substances.
- Label 8

- IMDG, IATA

- Class 8 Corrosive substances.
- Label 8

- 14.4 Packing group

- ADR/RID/ADN, IMDG, IATA III

- 14.5 Environmental hazards:

- Marine pollutant: Not applicable.
No

- 14.6 Special precautions for user

- Kemler Number: Warning: Corrosive substances.
80
- EMS Number: F-A, S-B
- Stowage Category: A
- Stowage Code: SW2 Clear of living quarters.

- 14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

(Contd. on page 9)

EUE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 8)

- Transport/Additional information:**- ADR/RID/ADN****- Limited quantities (LQ)**

5L

- Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

- IMDG**- Limited quantities (LQ)**

5L

- Excepted quantities (EQ)

Código E4

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

- UN "Model Regulation":

UN 1760 CORROSIVE LIQUID, N.O.S. (SULPHAMIC ACID), 8, III

* SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**- Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

- Hazard pictograms

GHS05

- Signal word Danger**- Hazard-determining components of labelling:**

sulphamidic acid

- Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

- Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 IF ON SKIN: Wash with plenty of water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P406 Store in a corrosion resistant container / container with a resistant inner liner.

P502 Refer to manufacturer or supplier for information on recovery or recycling.

- Directive 2012/18/EU**- Named dangerous substances - ANNEX I** None of the ingredients is listed.**- LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**

None of the ingredients is listed.

- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

(Contd. on page 10)

EUE

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 9)

- DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

None of the ingredients is listed.

- REGULATION (EU) 2019/1148

- Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

- Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

None of the ingredients is listed.

- National regulations

- Information about limitation of use:

Employment restrictions concerning young persons must be observed.

- Other regulations, limitations and prohibitive regulations

- Substances of very high concern (SVHC) according to REACH, Article 57

None of the ingredients is listed.

- VOC (EU) 0,0 g/l

- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

This safety data sheet complies with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

- Registration-Number

- Relevant phrases

Complete wording of hazard statements and risk phrases (H- and R-phrases) mentioned in section 3. These phrases refer to the constituents. The labelling for this product is stated in section 2.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H412 Harmful to aquatic life with long lasting effects.

- Department issuing data specification sheet: See section 1.3: Responding area

- Date of previous version: 27.12.2022

- Version number of previous version: 113.20

- Abbreviations and acronyms:

RPE: Respiratory Protective Equipment

RCR: Risk Characterisation Ratio (RCR= PEC/PNEC)

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CLP: Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

ISO: International Organisation for Standardisation

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

SVHC: Substance of Very High Concern

(Contd. on page 11)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 19.10.2023

Version number 113.21 (replaces version 113.20)

Revision: 12.06.2023

Trade name KLC Prowaclean 8 XL

(Contd. of page 10)

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Met. Corr. 1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2



Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3



- * Data compared to the previous version altered.

EUE

Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

GRAFIČKA DOKUMENTACIJA
- TRETMAN OTPADNIH VODA -

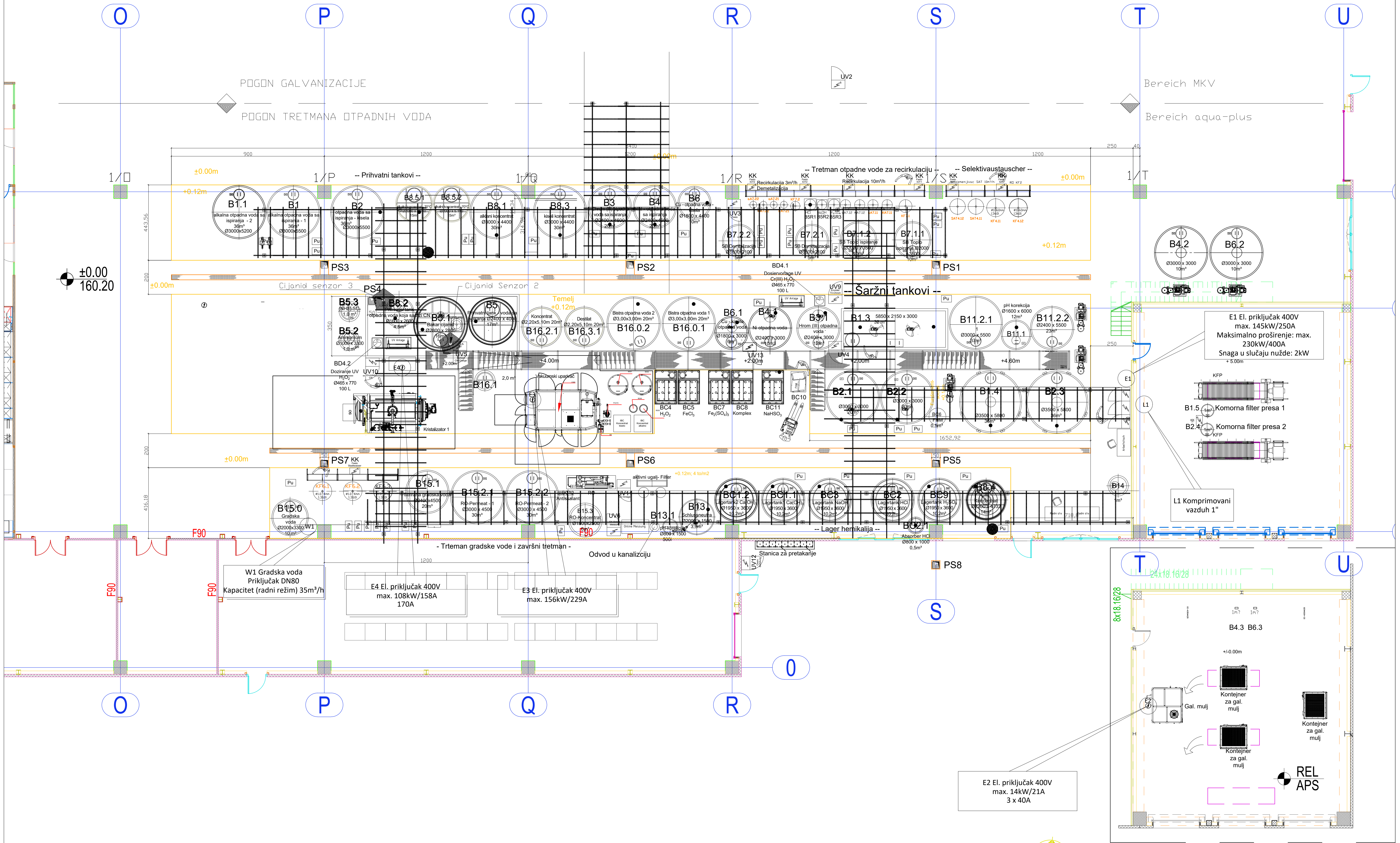
Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	42 od 43


Naručilac	Naziv projekta	Projektant
	SEPARAT - TRETMAN OTPADNIH VODA -	

GRAFIČKA DOKUMENTACIJA

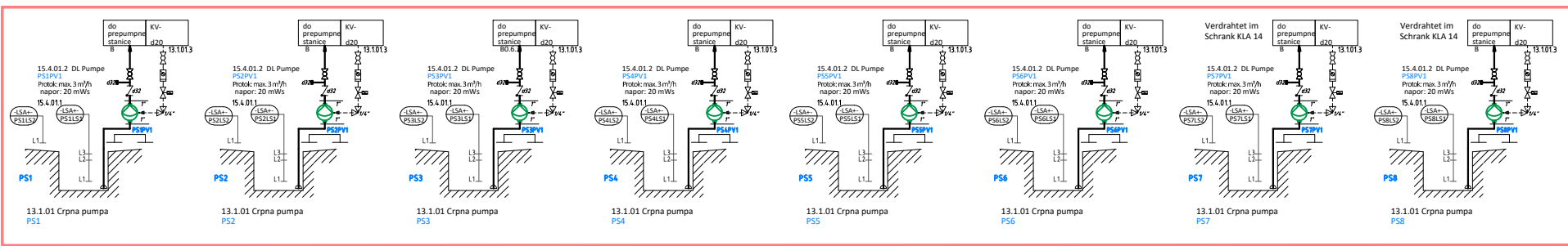
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001	Osnova pogona za tretman otpadnih voda
002	Procesna šema – Tretman otpadnih voda
003	Procesna šema – Tretman otpadnih voda – Unapređenje





Sveska	Poglavlje:	Revizija	Strana
7	Opšti deo	1	43 od 43

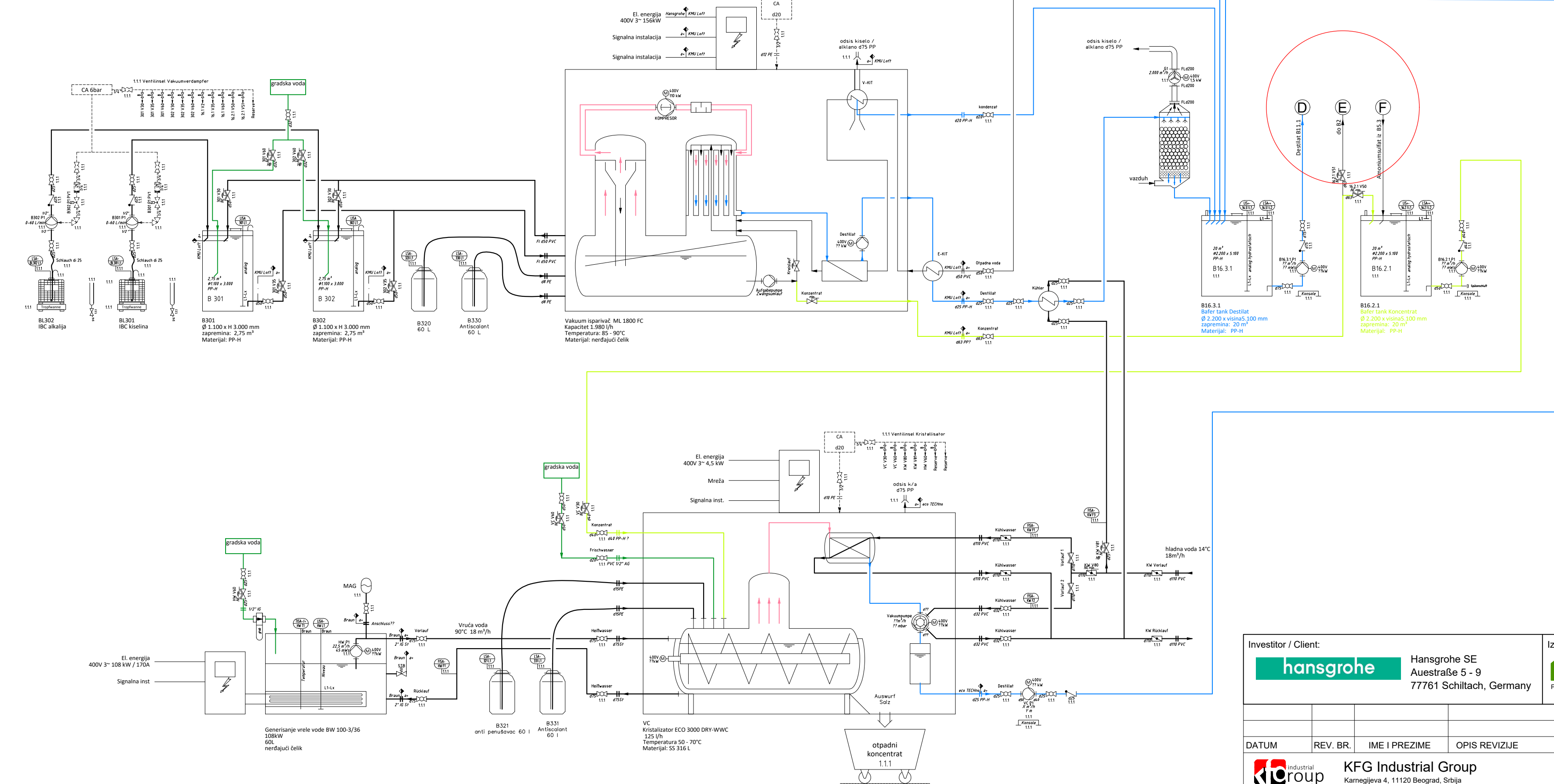
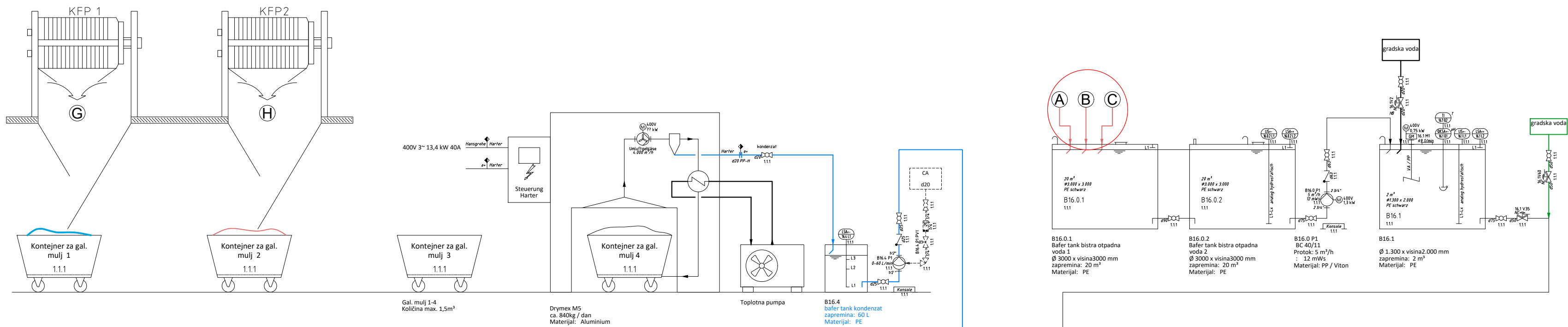


DATUM	REV. BR.	IME I PREZIME	OPIS REVIZIJE	INVESTITOR: HANS GROHE d.o.o. Beograd Krunska 73, 11000 Beograd
 KFG Industrial Group Karnegijeva 4, 11120 Beograd, Srbija Tel: +381 11 3370 425; Email: info@kfg.ac.rs				OBJEKT: Galvanizacija u okviru proizvodnog kompleksa Valjevo, KP br. 18722 KO Valjevo
RADIO ODG PROJEKT PROJEKTANT PROJEKTANT ODOBRILO CRTAO	DATUM 03.2024. 03.2024. 03.2024. 03.2024.	IME I PREZIME Dejan Knežević Milica Milošević	BROJ LICENCE 371 F406 07 391 1075 23	POTPIS 
RAZMERA: 1:10	FORMAT A1	NAZIV: OSNOVA PRIZEMLJA - Pogon za tretman otpadnih voda -	BROJ CRTEŽA: U 258 07 001	LIST: 1od1
			REV: 1	VRSTA: IDP

Investitor / Client:  Hansgrohe SE Austraße 5 - 9 77761 Schiltach, Germany	Izvođač / Contractor:  ENERGO GROUP Proizvođač za inženjering, projektovanje, izgradnju i usluge d.o.o. Neznanog junaka 7 11000 Beograd, Srbija Tel: +381(0) 11 71 55 000 Fax: +381(0) 11 71 55 017 mail: office@energogroup.rs www.energogroup.rs
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Investitor / Client:		Hansgrohe SE Autstrada 5 - 9 77761 Schönbach, Germany		Ispoditelj / Contractor:		 Posredstvo za stvaranje projekata, dizajna i usluga		Mornaroglav Jankula 11000 Benkovac, Hrvatska Tel: +385 (0) 11 25 29 00 Fax: +385 (0) 11 25 29 01 mail: obd@jankula.hr www.energo.hr																																																																																	
<table border="1"> <thead> <tr> <th>DATUM</th> <th>REV. BR.</th> <th>IME I PREZIME</th> <th>OPIS REVIZIJE</th> <th>INVESTITOR</th> <th>PROJEKAT</th> <th>DEO</th> <th>BROJ CRTEŽA</th> <th>LIST</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>  KFG Industrial Group Kermelova 11102 Zagreb, Split Tel: +385 (0) 1 491 40 00, Fax: +385 (0) 1 491 40 01 </td> <td colspan="3"> HAZOP 03.03.2024. </td> <td colspan="2"> HAZOP HAZOP d.o.o. u Bregod Kuna 73, 11000 Bregoda </td> <td colspan="4"> OBJEKAT: Galvanizacija u okviru proizvodnog kompleksa Valspar, op. br. 10722-00 Valspar </td> </tr> <tr> <td colspan="2"> RADIO 03.03.2024. </td> <td colspan="2"> IME I PREZIME Dejan Kocunec </td> <td colspan="2"> BROJ IZJAVA 301174608.01 </td> <td colspan="4"> PROJEKAT: Treća faza izgradnje Galvanizacija u okviru proizvodnog kompleksa </td> </tr> <tr> <td colspan="2"> PROJEKTANT 03.03.2024. </td> <td colspan="2"> IME I PREZIME Milica Mirošević </td> <td colspan="2"> PROJEKAT 3011725.01 </td> <td colspan="4"> DEO: 7 - Projekat tehnologije </td> </tr> <tr> <td colspan="2"> PROJEKTANT 03.03.2024. </td> <td colspan="2"> IME I PREZIME Milica Mirošević </td> <td colspan="2"> PROJEKAT 3011725.01 </td> <td colspan="4"> VRSTA: IDP </td> </tr> <tr> <td colspan="2"> ODOBRILO 03.03.2024. </td> <td colspan="2"> IME I PREZIME Milica Mirošević </td> <td colspan="2"> PROJEKAT 3011725.01 </td> <td colspan="4"> DEO: 7 - Projekat tehnologije </td> </tr> <tr> <td colspan="2"> CRTAO 03.03.2024. </td> <td colspan="2"> IME I PREZIME Milica Mirošević </td> <td colspan="2"> PROJEKAT 3011725.01 </td> <td colspan="4"> DEO: 7 - Projekat tehnologije </td> </tr> <tr> <td colspan="2"> FORMAT A0 </td> <td colspan="2"> NAZIV: PROCESNA ŠEMA - Tretnan otpadnih voda - </td> <td colspan="2"> BROJ CRTEŽA: U 258 07 002 </td> <td colspan="2"> LIST: 1od1 </td> <td colspan="2"> REV. 1 </td> </tr> </tbody> </table>										DATUM	REV. BR.	IME I PREZIME	OPIS REVIZIJE	INVESTITOR	PROJEKAT	DEO	BROJ CRTEŽA	LIST	REV.	 KFG Industrial Group Kermelova 11102 Zagreb, Split Tel: +385 (0) 1 491 40 00, Fax: +385 (0) 1 491 40 01	HAZOP 03.03.2024.			HAZOP HAZOP d.o.o. u Bregod Kuna 73, 11000 Bregoda		OBJEKAT: Galvanizacija u okviru proizvodnog kompleksa Valspar, op. br. 10722-00 Valspar				RADIO 03.03.2024.		IME I PREZIME Dejan Kocunec		BROJ IZJAVA 301174608.01		PROJEKAT: Treća faza izgradnje Galvanizacija u okviru proizvodnog kompleksa				PROJEKTANT 03.03.2024.		IME I PREZIME Milica Mirošević		PROJEKAT 3011725.01		DEO: 7 - Projekat tehnologije				PROJEKTANT 03.03.2024.		IME I PREZIME Milica Mirošević		PROJEKAT 3011725.01		VRSTA: IDP				ODOBRILO 03.03.2024.		IME I PREZIME Milica Mirošević		PROJEKAT 3011725.01		DEO: 7 - Projekat tehnologije				CRTAO 03.03.2024.		IME I PREZIME Milica Mirošević		PROJEKAT 3011725.01		DEO: 7 - Projekat tehnologije				FORMAT A0		NAZIV: PROCESNA ŠEMA - Tretnan otpadnih voda -		BROJ CRTEŽA: U 258 07 002		LIST: 1od1		REV. 1	
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- Durchgangshahn
 straight-way cock
 Rückschlagarmatur allgemein
 check valve
 Schmutzfänger
 dirt trap
 Membranarmatur
 diaphragm valve
 Armatur mit Membrantrieb
 membrane valve
 Armatur mit Magnetantrieb
 magnetic valve
 Membranpumpe
 diaphragm pump
- Wartungsarmatur CA
 armature pressed air
 Alarm / alarm
 Regler / controller
 Durchflussmenge / flowmeter
 Niveau / niveau
 Leitfähigkeit / conductivity
 Anzeige / display
 Druck / pressure
 Durchfluss / flow rate
 Temperatur / temperature
 Schalter / switch
 Schreiben / print control

PVC / ND10/16
 Temperatura za PVC/ PE max. 50°C,
 Temperatura za PPH max. 80°C.

Investitor / Client:				Izvođač / Contractor :			
Hansgrohe SE Austraße 5 - 9 77761 Schiltach, Germany				Neznano junaka 7 11000 Beograd, Srbija tel. +381(0) 11 71 55 000 fax. +381(0) 11 71 55 017 mail: office@energogroup.rs www.energogroup.rs			
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PROJEKTANT	03.2024.	Dejan Knežević	371 F406 07		DEO: 7 - Projekat tehnologije		
ODOBRIO					VRSTA: IDP		
CRTAO							
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