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DSL-01

Aanvraag omgevingsvergunning milieu DSL-01

ABM toets - indirecte lozing

Algemene Beoordelingsmethodiek 2016 - indirecte lozing

26 februari 2025

Kenmerk R023-1276528JJB-V03-ivl-NL

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Inhoud

1 Inleiding

1.1 Aanleiding

Op het bedrijventerrein Oosterhorn in de gemeente Eemsdelta is DSL-01 B.V., een dochteronderneming van SkyNRG, voornemens een installatie voor de productie van duurzame luchtvaartbrandstof (DLB) te realiseren. SkyNRG is opgericht in 2010 met als doel de wereldwijde distributie en verkoop van DLB te versnellen. Het bedrijf is actief in de gehele keten: R&D en projectontwikkeling, inkoop en verkoop van duurzame luchtvaartbrandstoffen en het afleveren van DLB op vliegvelden. Bovendien zet de onderneming in op de ontwikkeling van regionale productieketens voor DLB. Daartoe stapt SkyNRG nu met DSL-01 ook in de productie van DLB. SkyNRG's eerste productiefabriek in Delfzijl zal gaan leveren aan onder andere Schiphol als alternatief voor fossiele kerosine. Bijzonder aan deze fabriek is dat deze zich volledig toelegt op de productie van DLB en dat doet door reststromen te gebruiken als grondstof. In tegenstelling tot fossiele luchtvaartbrandstof, die geraffineerd wordt uit aardolie, wordt de DLB geproduceerd uit industriële bijproducten, residuen en reststromen die plantaardige of dierlijke oliën of vetten bevatten.

De beoogde inrichting zal de naam DSL-01 dragen, waar de afkorting DSL staat voor 'Direct Supply Line'. De voorgenomen activiteiten van DSL-01 bestaan uit de ontvangst, opslag en chemische bewerking van plantaardige en dierlijke reststromen, waarmee eindproducten worden vervaardigd als DLB, bio-nafta, bio-propaan en bio-butaan. Deze producten worden per binnenvaartschip of tankwagen afgevoerd naar de afnemers. Met de realisatie van de voorgenomen duurzame brandstofinstallatie voorziet DSL-01 in de toenemende vraag van de markt naar DLB. Het voorgenomen initiatief draagt bij aan de Nederlandse en Europese doelstellingen op het gebied van circulariteit en CO_2-reductie. Tevens past de komst van DSL-01 op het bedrijventerrein Oosterhorn in de ontwikkeling van een sterk cluster van duurzame, biobased en circulaire chemiebedrijven.

In het voorliggende document is een toetsing weergegeven conform de Algemene BeoordelingsMethodiek (ABM). Het betreft de ABM-toets voor de indirecte lozing van afvalwater afkomstig van bedrijfsprocessen van DSL-01 op de AWZI van Northwater. Deze toetsing is onderdeel van de vergunningaanvraag voor een omgevingsvergunning milieu en water. Het milieudeel betreft een zogenaamde oprichtingsvergunning, waarvoor de provincie Groningen als bevoegd gezag is aangewezen voor het afgeven van de beschikking. Voor het waterdeel is het waterschap Hunze en Aa's aangewezen als bevoegd gezag.
Tegelijkertijd wordt een m.e.r.-procedure doorlopen conform het Besluit milieueffectrapportage. Ten behoeve van het bepalen van de juiste uitgangspunten en het opstellen van deze rapportage hebben er diverse overleggen plaatsgevonden met de engineeringspartner Technip Energies (T.EN) en de Omgevingsdienst Groningen (ODG) die optreedt als coördinator van alle betrokken bevoegd gezagen.

1.2 Voorgeschiedenis

Na een uitgebreid proces van vooroverleggen en beoordelingen van conceptrapportages heeft TAUW namens DSL-01 in eerste aanleg op het initiële ontwerp van de fabriek op 7 juli 2023 de definitieve vergunningaanvragen ingediend conform de Wabo en de Waterwet. Tevens is een aanvraag ingediend conform de Wet Natuurbescherming ten behoeve van de vaststelling van nul-depositie in relevante Natura 2000-gebieden (via een positieve weigering).

Nadat de aanvragen waren beoordeeld op volledigheid en tevens gedeeltelijk inhoudelijk is op 12 december 2023 door de initiatiefnemer een verzoek bij de ODG ingediend voor opschorting van de vergunningaanvragen. De reden hiervoor was het voornemen van SkyNRG tot het doorvoeren van 2 substantiële en noodzakelijke wijzigingen in het ontwerp van de fabriek, meer in het bijzonder met betrekking tot de voorbehandelingsinstallatie en middels toevoeging van een installatie voor de productie van waterstof. Dit heeft geleid tot de noodzaak van herontwerp van de fabriek en dientengevolge het aanpassen van de specialistische onderzoeken en overige delen van de vergunningaanvragen.

1.3 Nieuw ontwerp: bronmaatregelen preventie afvalwater en waterhergebruik

Sinds 2023 is een nieuw ontwerp voor de fabriek vastgesteld. Dit nieuwe ontwerp wordt uitvoerig beschreven in de procesbeschrijving.
Dit betreft het rapport met kenmerk; *R018-1276528RLX-V02-ivl-NL.pdf*. In dit nieuwe ontwerp is de lozing van (afval)water sterk beperkt door de inzet van een Water Recovery Unit (WRU). Deze installatie maakt gebruik van Mechanical Vapour Recompression (MVR), oftewel indamping, om water terug te winnen. Het gerecupereerde water wordt vervolgens hergebruikt als spoelvloeistof voor grondstoffen met citroenzuur.

Het residu dat overblijft in de WRU wordt afgevoerd naar een erkende verwerker, waarbij de aanwezige verontreinigingen als afval wordt verwerkt. Hierdoor wordt de hoeveelheid afvalwater en de emissie naar water sterk gereduceerd. Er ontstaat alleen afvalwater bij een beperkt aantal installaties binnen de fabriek. Doordat de grondstoffen niet in contact komen met het te lozen (afval)water, wordt de impact op het milieu geminimaliseerd. Aanvullend beschikt DSL-01 over een ingangsprocedure met kwaliteitseisen waaraan de grondstoffen moeten voldoen.
Deze aanpak draagt maximaal bij aan bronreductie en de preventie van emissies van (gevaarlijke) stoffen.

1.4 Leeswijzer

De hoofdstukindeling van dit document is als volgt opgebouwd:

Hoofdstuk 1	Inleiding
Hoofdstuk 2	Werkwijze
Hoofdstuk 3	Water relevante stoffen DSL-01 – indirecte lozing
Hoofdstuk 4	Saneringsinspanningen
Hoofdstuk 5	Conclusie
Bijlage 1	Veiligheidsbladen

2 Werkwijze

2.1 Wettelijk kader

De ABM betreft een informatiedocument voor de beoordeling van een aanvraag om een omgevingsvergunning voor een milieubelastende activiteit, een lozingsactiviteit op een oppervlaktewaterlichaam of een lozingsactiviteit op zuiveringstechnisch werk. In het Besluit kwaliteit leefomgeving is de ABM aangewezen als BBT-document in bijlage XVIII onder B.

2.2 Methodiek

De ABM-toetsing heeft als doel om de waterbezwaarlijkheid van stoffen of mengsels van stoffen te bepalen op basis van intrinsieke stofeigenschappen. Onder waterbezwaarlijkheid wordt verstaan: ‘de mate waarin er een kans is op nadelige effecten voor het aquatische milieu’.

De waterbezwaarlijkheid is onderverdeeld in vier categorieën:

- Z (Zeer Zorgwekkende Stoffen (verder: ZZS))
- A (niet snel afbreekbare, waterbezwaarlijke stoffen)
- B (snel afbreekbare, waterbezwaarlijke stoffen)
- C (stoffen die van nature voorkomen in het lokale oppervlaktewater)

De bovenstaande classificatie wordt nader toegelicht in paragraaf 2.6.

Bij elke waterbezwaarlijkheidsklasse hoort een overeenkomstige saneringsinspanning.
Deze saneringsinspanningen zijn in detail beschreven in de ABM 2016 handleiding. De resultaten van de toetsing bepalen wat de waterbezwaarlijkheid van de toegepaste stoffen of mengsels van stoffen zijn en daarmee welke saneringsinspanning van toepassing is.

Om de ABM-classificatie van de water-relevante stoffen vast te kunnen stellen, dient de ABM-classificatie van de afzonderlijke componenten in een mengsel onderzocht te worden.
Deze afzonderlijke ABM-classificaties worden vervolgens gebruikt om de ABM-classificatie van de samengestelde waterstroom relevante stoffen als geheel vast te stellen.

Voor het vaststellen van de ABM-classificatie wordt gebruik gemaakt van de door DSL-01 BV verstrekte gegevens. Daarnaast wordt gebruik gemaakt van generieke kenmerken van stoffen vanuit verschillende databases. De werkwijze voor het vaststellen van de ABM-classificatie is hieronder puntsgewijs vermeld:

1. Inventariseren van de toegepaste water relevante stoffen tijdens de reguliere bedrijfssituatie
2. Vaststellen of de stoffen onder normale bedrijfscondities in contact kunnen komen met proces- of afvalwater en uiteindelijk op het procesafvalwaterriool en daarmee op het oppervlaktewater worden geloosd (via een waterzuivering)
3. ABM-classificatie vaststellen conform de volgende stappen:
    3.1. Inventariseren van de kenmerken en samenstelling van de water relevante stoffen op basis van de Material Safety Data Sheets (MSDS) en/of informatie van leveranciers

3.2. Kenmerken bepalen van de aanwezige componenten met behulp van de ECHA-database
3.3. Indien de ECHA-database onvoldoende data biedt, wordt tevens gekeken naar de data uit de QSAR-toolbox, Ecotox, Comptox, Pubchem en Echemportal
3.4. Uitvoeren ABM-classificatie conform ABM 2016 methodiek

2.3 Toegepaste documenten en databases

In deze rapportage zijn op basis van de door DSL-01 BV aangeleverde gegevens, de ABM-classificatie van de te toetsen water relevante stoffen door TAUW bepaald. Hierbij is naast de door DSL-01 BV aangeleverde gegevens gebruik gemaakt van de volgende documenten en databases:

- ABM 2016: versiedatum 16 maart 2016: raadpleegdatum 20 augustus 2024: http://www.infomil.nl/onderwerpen/klimaat-lucht/handboek-water/thema's/zzs/uitleg-werkwijze-abm/
- Handreiking voor het opzoeken van gegevens voor de uitvoering van de ABM; versiedatum 28-08-2018; raadpleegdatum 20 augustus 2024
- ABM Excel tool: Versie 17 mei 2023; 20 augustus 2024
- SZW-lijst van kankerverwekkende stoffen en processen en SZW-lijst van mutagene stoffen. Lijsten als bedoeld in artikel 4.11 van het Arbeidsomstandighedenbesluit: 20 augustus 2024: https://zoek.officielebekendmakingen.nl/stcrt-2016-34544.html
- Lijst van Zeer Zorgwekkende Stoffen RIVM: versie 5 mei 2024: https://rvs.rivm.nl/zoeksysteem/ZZSlijst/TotaleLijst
- Lijst van potentieel Zeer Zorgwekkende Stoffen RIVM: versie 5 mei 2024: https://rvs.rivm.nl/zoeksysteem/ZZSlijst/TotaleLijst
- European Chemicals Agency (ECHA) database: 20 augustus 2024: http://echa.europa.eu/
- Chemical Substances Search database: 20 augustus 2024: https://www.echemportal.org/echemportal/
- Ecotox Knowledgebase database; 20 augustus 2024: https://cfpub.epa.gov/ecotox/index.cfm
- Pubchem database; 20 augustus 2024: https://pubchem.ncbi.nlm.nih.gov/
- CompTox Chemicals Dashboard v2.4.1 database; 20 augustus 2024: https://comptox.epa.gov/dashboard/
- QSAR-toolbox database versie V4.4: 20 augustus 2024

2.4 Inventarisatie kenmerken water relevante stoffen ABM-classificatie

Op basis van de aangeleverde informatie wordt de ABM-classificatie vastgesteld. Voor het vaststellen hiervan is het onderstaande stappenschema gehanteerd:

- Gewichtssamenstelling van componenten als toegepast in de water relevante stoffen bepalen
- Controle op aanwezigheid ZZS-componenten (RIVM-zoeksysteem stoffen)
- Biologische afbreekbaarheid van de componenten (OECD-301 test)

- CLP H-zinnen aquatische toxiciteit componenten (H-400, H-411, H-412 & H-413)
- Chronische aquatische toxiciteit componenten (NOEC)
- Laagste acute toxiciteit componenten (LC_{50}) of effect concentratie (EC_{50})
- Oplosbaarheid in water (mg/l)
- Verdeling coëfficiënt octanol/water (Log Kow)

2.5 Anorganische stoffen die van nature in het milieu voorkomen

Voor toegepaste water relevante stoffen kan het voorkomen dat componenten aanwezig zijn, die (deels) opgebouwd zijn uit anorganische componenten. Voor het merendeel van anorganische componenten is in de ECHA-database geen of geen bruikbare informatie over onder andere de afbreekbaarheid en Log Kow opgenomen. Daarom worden deze anorganische componenten individueel beoordeeld. Anorganische componenten die van nature in het oppervlaktewater voorkomen worden in de ABM-toetsing en rapportage geclassificeerd als C1 of C2. Dit geldt bijvoorbeeld voor de anorganische componenten; $Ca(Cl)_2$, NaOH, HCl, NaCl en KOH. Bij het vaststellen van de ABM-classificatie van de hulpmiddelen is deze classificatie gehanteerd voor de benoemde anorganische componenten, indien aanwezig in het hulpmiddel.

2.6 ABM-classificatie

Per waterbezwaarlijkheid (saneringsinspanning) klasse (Z, A, B en C) zijn andere richtlijnen ten aanzien van de inspanning om een emissie te beperken of te voorkomen. In de onderstaande paragrafen is een korte samenvatting gegeven van de richtlijnen om de emissie te beperken conform de ABM 2016 methodiek.

2.6.1 Waterbezwaarlijkheid klasse Z

Zeer zorgwekkende stoffen (ZZS) is een verzameling van de meest gevaarlijke stoffen voor mens en milieu. Voor stoffen met een waterbezwaarlijkheid die gekoppeld is aan een saneringsinspanning Z, geldt in beginsel dat de verontreiniging door deze stoffen moet worden gestreefd naar een nullozing. De beleidsdoelstelling voor deze stoffen is immers in de eerste plaats om deze stoffen uit de leefomgeving te weren. Middels een cyclische aanpak bestaande uit bronaanpak, minimalisatie en continu verbeteren wordt beoogd deze doelstelling te realiseren.

Voor bedrijven betekent dit dat proceskeuze en interne bedrijfsvoering hierop moeten worden afgestemd. Hierbij dient in de eerste plaats altijd gedacht te worden aan vervanging van deze stoffen door alternatieven die minder waterbezwaarlijk zijn.
Pas als de mogelijkheden hiervoor volledig zijn uitgeput (binnen het haalbare en betaalbare), kan gekeken worden naar procesoptimalisatie dan wel andere proceskeuze om contact van deze stoffen met water te voorkomen of verminderen. Pas als laatste stap komt verbeterde zuivering van de restlozing in beeld.

Hierbij geldt volgende kanttekening: indien het gaat om hulpstoffen ligt substitutie voor de hand, maar bij stoffen die in grondstoffen en eindproducten zitten, die onlosmakelijk zijn verbonden aan productieprocessen en productie-ondersteunende processen, kan het zijn dat substitutie geen optie is. Dan kunnen stoffen nog steeds in contact komen met het te lozen afvalwater.

Een voorbeeld hiervan is toepassing van micronutriënten in een biologische zuivering (zie paragraaf 4.1). Ook voor het ontstaan van bijproducten, bijvoorbeeld het ontstaan van benzeen (ZZS) bij de aardolieproductie, is substitutie geen optie. In dit geval moet voor maatregelen worden ingezoomd op in-proces-maatregelen en zuiveringstechnische maatregelen.

Bij de bepaling van de mate van sanering, dienen hier in beginsel de technieken toegepast te worden, die het meest vergaand zijn binnen de verzameling technieken die als BBT geclassificeerd kunnen worden.

Indien sprake is van lozing van ZZS moet de veroorzaker van de lozing iedere 5 jaar aan het bevoegd gezag rapporteren over de gemaakte vorderingen met betrekking tot emissiebeperking van ZZS en de mogelijkheden de emissie verder te beperken door toepassing van nieuwere technieken die als BBT gekwalificeerd kunnen worden. Hierbij dient de ontwikkeling van deze technieken op wereldwijde schaal beschouwd te worden. Het bevoegd gezag beoordeelt vervolgens of haalbaar en betaalbaar een stap gemaakt kan worden in de reductie van de belasting van oppervlaktewater.

2.6.2 Waterbezwaarlijkheid klasse A

Ook voor stoffen met een waterbezwaarlijkheid die gekoppeld is aan een saneringsinspanning A geldt in beginsel dat de verontreiniging door deze stoffen moet worden beëindigd. Er moet geprobeerd worden zo dicht mogelijk bij een nullozing te komen. Ook hier is het aangewezen om te opteren voor die technieken die de meest vergaande sanering bewerkstelligen binnen de verzameling technieken die als BBT geclassificeerd kunnen worden.

Voor bedrijven betekent dit dat proceskeuze en interne bedrijfsvoering hierop moeten worden afgestemd. Ook kan hierbij gedacht worden aan vervanging van deze stoffen door alternatieven die minder waterbezwaarlijk zijn en aan procesoptimalisatie. Hier past dezelfde kanttekening als bij saneringsinspanning Z: indien het gaat om hulpstoffen ligt substitutie voor de hand, maar bij stoffen die in grondstoffen en eindproducten zitten die onlosmakelijk zijn verbonden aan productieprocessen is substitutie niet altijd een optie en kunnen stoffen nog steeds vrijkomen bij het proces. Een voorbeeld hiervan is het vrijkomen van metalen, zoals selenium en koper bij de aardolieproductie. In die gevallen moet voor maatregelen worden ingezoomd op in-proces-maatregelen en zuiveringstechnische maatregelen.

Een verschil met de stoffen die vallen in categorie Z is, dat voor A-stoffen zuivering uitdrukkelijker openstaat als optie om de sanering vorm te geven. Een belangrijk verschil met stoffen gekoppeld aan saneringsinspanning B echter is de slechte afbreekbaarheid van A-stoffen. Dit betekent dat bij het bepalen van de zuiveringsinspanning van A-stoffen hier extra aandacht aan geschonken dient te worden.

2.6.3 Waterbezwaarlijkheid klasse B

Voor stoffen met een waterbezwaarlijkheid die gekoppeld is aan een saneringsinspanning B geldt dat de lozing van deze stoffen zoveel mogelijk moet worden voorkomen. Bedrijven dienen hun proceskeuze en interne bedrijfsvoering hierop af te stemmen (good-housekeeping en proces-geïntegreerde maatregelen).

Bij deze categorie waterbezwaarlijkheid heeft het bevoegd gezag de volledige keuze van de technieken die tot BBT gerekend worden, tot zijn beschikking. Afhankelijk van de specifieke precieze waterbezwaarlijkheid in het concrete geval, kan een keuze gemaakt worden uit de verschillende BBT-technieken. Hier geldt slechts de algemene lijn dat een hogere waterbezwaarlijkheid (binnen de categorie ‘B’) hogere investeringen rechtvaardigt: er zijn geen specifieke redenen om te kiezen voor de best of slechtst presterende techniek binnen de verzameling technieken die als BBT geclassificeerd kunnen worden. Een voorbeeld van een lozing van een B-stof is bijvoorbeeld de lozing van tolueen bij aardolieproductie.
Ook geldt hier dat deze stoffen in de regel snel biologisch afbreekbaar zijn. Het is dan ook niet absoluut noodzakelijk om over te gaan tot substitutie of het vermijden van contact met afvalwater, als deze stoffen middels zuivering uit het afvalwater worden gehaald, zolang de toegepaste zuivering maar als BBT geclassificeerd kan worden.

2.6.4 Waterbezwaarlijkheid klasse C

Stoffen met een waterbezwaarlijkheid die gekoppeld is aan een saneringsinspanning C komen van nature voor in het oppervlaktewater en zijn minder milieubezwaarlijk. Dit wordt meegewogen bij het bepalen van de noodzaak om (aanvullende) emissiebeperkende maatregelen te nemen.

3 Water relevante stoffen DSL-01 – indirecte lozing

3.1 Algemeen

In voorbereiding op het uitvoeren van de ABM-toets is op basis van de beschikbare informatiedocumenten DSL-01, en in overleg met de opdrachtgever, bepaald welke deelprocessen relevant zijn voor de toetsing. De ABM-toets is uitgevoerd voor de voorziene indirecte lozing van afvalwater op de AWZI van Northwater. In paragraaf 3.2 zijn de resultaten van de toetsing weergegeven.

3.2 ABM-classificatie water relevante stoffen

In deze paragraaf wordt de ABM-classificatie bepaald van de beoordeelde water relevante stoffen die in contact kunnen komen met het te lozen proceswater. De beoordeelde water-relevante stoffen zijn per waterbezwaarlijkheid klasse benoemd in paragraaf 3.2.1 tot en met 3.2.4.

3.2.1 Water relevante stoffen met waterbezwaarlijkheid klasse Z

In tabel 3.1 worden de water-relevante stoffen weergegeven die deel uitmaken van deze toetsing met een waterbezwaarlijkheid klasse Z.

Tabel 3.1 ABM-classificatie (hulp)stoffen met waterbezwaarlijkheid klasse Z voor de indirecte lozing van DSL-01

Naam	Component	Cas nr.	Massafractie (m/m)	ABM individuele stof	ABM mengsel	Toepassing
Microfeed Opure	1. Nikkel(II)sulfaat 2. Zwavelzuur 3. IJzer(III)chloride 4. Kobalt(II)sulfaat 5. mangaan(II)sulfaat 6. Dinatriumtetraboraat 7. Zinksulfaat 8. Koper(II)sulfaat 9. waterstofchloride	1. 10101-97-0 2. 7664-93-9 3. 7705-08-0 4. 10124-43-3 5. 10034-96-5 6. 1303-96-4 7. 7446-19-7 8. 7758-98-7 9. 7647-01-0	1. 0,03 2. 0,05 3. 0,03 4. 0,03 5. 0,03 6. 0,01 7. 0,01 8. 0,01 9. 0,01	1. Z1 2. C2 3. C2 4. Z1 5. A2 6. Z1 7. A1 8. A1 9. C2	Z1	Micro-nutriënt
Biopaq Micromix	1. Iron(III) chloride 40% 2. Sulphuric acid 96% 3. Copper(II) sulfate, pentahydrate 4. manganese(II)sulfate, monohydrate 5. Nickel(II) sulfate 6. Zinc sulfate, monohydrate 7. Cobalt(II)sulfate	1. 7705-08-0 2. 7664-93-9 3. 7758-99-8 4. 10034-96-5 5. 7786-81-4 6. 7446-19-7 7. 10124-43-3	1. 0,1 2. 0,03 3. 0,006 4. 0,003 5. 0,002 6. 0,002 7. 0,001	1. C2 2. C2 3. A1 4. A2 5. Z1 6. A1 7. Z1	Z1	Micro-nutriënt

3.2.2 Water relevante stoffen met waterbezwaarlijkheid klasse A

In tabel 3.2 worden de water-relevante stoffen weergegeven die deel uitmaken van deze toetsing met een waterbezwaarlijkheidsklasse A.

Tabel 3.2 ABM-classificatie (hulp)stoffen met waterbezwaarlijkheidsklasse A voor de indirecte lozing van DSL-01

Naam	Component	Cas nr.	Massafractie (m/m)	ABM individuele stof	ABM mengsel	Toepassing
MOUSSOL-FF 3/6 F-5 7942	1. 1,2-ETHANDIOL 2. 2-(2-BUTOXYETHOXY)ETHANOL 3. TRIETHANOLAMMONIUM-LAURYLSULFATE 4. ALKYLAMIDOBETAINE 5. WATER	1. 107-21-1 2. 112-34-5 3. 85665-45-8[1] 4. 147170-44-3[1] 5. 7732-18-5	1. 0,15 2. 0,1 3. 0,1 4. 0,05 5. 0,79	1. B3 2. B5 3. A1 4. A1 5. C2	A2	Fire-extinguishing foam

[1] Stoffen aangemerkt met een '[1]' bevatten onvoldoende data in ECHA en andere databases. Hierdoor wordt de stof met de meest strenge waterbezwaarlijkheid beoordeeld, namelijk A1.

3.2.3 Water relevante stoffen met waterbezwaarlijkheid klasse B

In tabel 3.3 worden de water-relevante stoffen weergegeven die deel uitmaken van deze toetsing met een waterbezwaarlijkheid klasse B.

Tabel 3.3 ABM-classificatie (hulp)stoffen met waterbezwaarlijkheid klasse B voor de indirecte lozing van DSL-01

Naam	Component	Cas nr.	Massafractie (m/m)	ABM individuele stof	ABM mengsel	Toepassing
Aqueous Ammonia	1. Aqueous ammonia	1. 1336-21-6[1]	1. 0,5	1. B1	B1	Reagent for analysis
Ammonia solution 25%	1. ammonia, anhydrous	1. 7664-41-7	1. 0,499999	1. B1	B1	General use
HYDREX 1904	1. Morfoline-	1. 110-91-8	1. 0,8	1. B2	B2	Ketelwater-behandeling
Citric acid 10-50%	1. Citric acid 2. Water	1. 77-92-9 2. 7732-18-5	1. 0,5 2. 0,9	1. B3 2. C2	B3	Wasmiddel hydrothermale voorbehandeling
n-MDEA	1. N-Methyldiethanolamine	1. 105-59-9	1. 1	1. B3	B3	Katalysator
HYDREX 1992	1. Carbonhydrazide	1. 497-18-7	1. 0,25	1. B2	B3	Ketelwater-behandeling
Ureum	1. Urea	1. 57-13-6	1. 0,7	1. B5	B5	Macro-nutriënt

[1] De stof aangemerkt met een '[1]' bevat onvoldoende data in ECHA en andere databases. Daarom is de stof 'ammonia, anhydrous' (cas nummer 7664-41-7) getoetst, vanwege de grote overeenkomst tussen beide stoffen.

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3.2.4 Water relevante stoffen met waterbezwaarlijkheid klasse C

In tabel 3.4 worden de water-relevante stoffen weergegeven die deel uitmaken van deze toetsing met een waterbezwaarlijkheid klasse C.

Tabel 3.4 ABM-classificatie (hulp)stoffen met waterbezwaarlijkheid klasse C voor de indirecte lozing van DSL-01

Naam	Component	Cas nr.	Massafractie (m/m)	ABM individuele stof	ABM mengsel	Toepassing
NALCO 7399	1. Natriumcarbonaat	1. 497-19-8[1]	1. 1	1. C1	C1	Ketelwater-behandeling
Caustic soda 50%	1. Sodium hydroxide 2. Water 3. Sodium Chloride	1. 1310-73-2[2] 2. 7732-18-5 3. 7647-14-5[2]	1. 0,52 2. 0,52 3. 0,05	1. C2 2. C2 3. C2	C2	pH regulatie
Sulfuric acid	1. Sulphuric Acid	1. 7664-93-9[2]	1. 1	1. C2	C2	Koelwater-middel
Fosforzuur	1. Phosphoric Acid	1. 7664-38-2[2]	1. 0,25	1. C2	C2	pH regulatie

[1] De stof aangemerkt met een '[1]' lost in contact met water op in natuureigen producten. Stof mag daarom overschreven worden met classificatie C1.
[2] Stoffen aangemerkt met een '[2]' lossen in contact met water op in natuureigen producten. Stof mag daarom overschreven worden met classificatie C2.

4 Saneringsinspanningen

In beginsel geldt dat DSL-01 zoveel mogelijk verontreinigingen in het (afval)water vermijdt in het kader van bronaanpak. DSL-01 beschikt over een ingangsprocedure met kwaliteitseisen waaraan de grondstoffen moeten voldoen. Verder beschikt DSL-01 over een WRU welke gebruik maakt van indamping. Het condensaat wordt volledig hergebruikt en het residu wordt afgevoerd naar een extern verwerker. Een uitgebreide toelichting over de WRU wordt toegelicht in de procesbeschrijving. Dit betreft het rapport met kenmerk; R018-1276528RLX-V02-ivl-NL.pdf.

Op deze wijze ontstaat alleen afvalwater bij een beperkt aantal installaties binnen de fabriek. Doordat de grondstoffen niet in contact komen met het te lozen (afval)water, wordt de impact op het milieu geminimaliseerd. Aanvullend beschikt DSL-01 over een ingangsprocedure met kwaliteitseisen waaraan de grondstoffen moeten voldoen. Daarbij zijn de benodigde chemicaliën geselecteerd op de laagste waterbezwaarlijkheid.

Deze aanpak draagt maximaal bij aan bronreductie en de preventie van emissies van (gevaarlijke) stoffen. Door deze wijze van behandeling en afvoer van het afval zijn grondstoffen, bijbehorende tussenproducten en eindproducten niet opgenomen in deze ABM-toets, omdat deze onder normale bedrijfscondities niet in het afvalwater terecht kunnen komen. Daarbij wordt het (afval)water dat vrijkomt bij spoel- en reinigingsstappen ook afgevoerd naar een externe verwerker.

Het te lozen afvalwater bestaat uit;
- Afvalwater uit zuurwaterstripper (SWS)
- Gecombineerde spui processtroom-condensaat & exportstoom-condensaat HMU
- Afvalwater uit ammoniakscrubber
- Spui zuurgasbehandelings-installatie

Bovenstaande toelichting beschrijft de herkomst van de stoffen en de bronaanpak om deze te vermijden. In het volgende deel van dit hoofdstuk wordt ingegaan op de saneringsmaatregelen die de lozing naar het ontvangende oppervlaktewater minimaliseren.

4.1 Stoffen met waterbezwaarlijkheid klasse Z

DSL-01 maakt gebruik van twee mengsels met waterbezwaarlijkheid klasse Z. Dit betreft oplossingen van micronutriënten. Micronutriënten worden in zeer kleine hoeveelheden toegevoegd aan de Thiopaq-installatie (zuurgasbehandelingsinstallatie) en alleen wanneer dit noodzakelijk is. Deze bioreactor zet een sulfide-rijke oplossing via biologische processen om in elementaire zwavel. Hoewel de dosering van micronutriënten minimaal is, is dit wel essentieel voor het behoud van de biologische activiteit in het systeem.

In het proces van DSL-01 komt zuurgas (gas bestaande uit voornamelijk H_2S (zwavelwaterstof) en CO_2) vrij. Dit wordt naar de zuurgasbehandelingsinstallatie geleid en daar behandeld. Het zuurgas wordt eerst door een waterscrubber geleid om de aanwezige ammoniak te verwijderen.
Daarna wordt het gas in een absorbtiekolom in contact gebracht met een waterige sulfide-arme, alkalische oplossing (natronloogoplossing). Zwavelwaterstof opgelost in water is een zuur en door een alkalische oplossing te gebruiken als scrubbervloeistof wordt de oplosbaarheid sterk verhoogd. Deze oplossing absorbeert al het zwavelwaterstof als sulfide. Vervolgens wordt de sulfiderijke oplossing naar een bioreactor (Thiopaq) gevoerd, waar micro-organismen (bacteriën) het sulfide uit de oplossing oxideren tot elementair zwavel. De biomassa met de elementair zwavel daarin wordt vervolgens in een decantor afgescheiden van de oplossing.

De bioreactor wordt gevoed met eenzijdig afvalwater. Hierdoor kan een tekort optreden aan nutriënten en/of sporenelementen. Als deze stoffen niet worden toegevoegd, zal het rendement van de bioreactor niet optimaal zijn. Bij hoge tekorten aan micronutriënten zal de groei van bacteriën en dus de verwijdering van zwavelwaterstof te laag zijn, waardoor er te veel zwavel in het stookgas blijft zitten wat dan als SO_X geëmitteerd zal worden. Andere symptomen van een micronutriënten tekort zijn sterke schuimvorming, degeneratie van slib of zelfs uitspoeling van slib. Om deze reden is het noodzakelijk om micronutriënten te doseren, wanneer een tekort dreigt. Kobalt en nikkel zijn zulke stoffen. De bacteriën absorberen deze micronutriënten uit de oplossing en gebruiken deze stoffen o.a. om enzymen te maken die essentieel zijn voor een goede stofwisseling. Enzymen zijn opgebouwd uit specifieke chemische bindingen, waar ook nikkel en kobalt onderdeel van uitmaken. Kobalt en nikkel zijn essentiële sporenelementen voor de aanmaak van vitamines (B) en kunnen niet worden vervangen door andere stoffen. Zonder sporen kobalt en nikkel is biologische sulfideverwijdering niet goed mogelijk. Als de voeding onvoldoende kobalt en nikkel bevat dan moeten deze stoffen worden aangevuld voor een optimaal functioneren van de bioreactor of biovergister.

Voor ZZS geclassificeerde stoffen of mengsels geldt eerst een bronaanpak, zoals het toepassen van een alternatieve behandeling of techniek. Indien dit niet (redelijkerwijs) haalbaar is, is er sprake van een inspanningsverplichting tot minimalisatie van het gebruik van het betreffende mengsel of stof. Bij deze voorziene biologische zwavelverwijdering is substitutie van micronutriënten onmogelijk. Het doseren van micronutriënten wordt beschouwd als BBT voor dit proces. Er zijn diverse technieken om zuurgas te verwijderen uit een gasstroom, maar de schaalgrootte van de DSL-01 zuurgasbehandelingsinstallatie resulteert in slechts de biologische verwijdering als enig alternatief. Het Claus-proces om zwavelwaterstof te verwijderen is alleen geschikt voor zeer grote hoeveelheden zuurgas, zoals bij aardolieraffinaderijen.
Een andere techniek is gebruik maken van een absorptiebed zoals zinkoxide, waarbij de zwavel dan wordt geabsorbeerd als zinksulfide. Deze techniek is geschikt voor zeer kleine hoeveelheden zuurgas, gezien het absorbtiebed niet geregenereerd kan worden en dus steeds vervangen moeten worden als het 'vol' is. Dit zou in het geval van DSL-01 leiden tot grote hoeveelheden zinksulfide die afgevoerd moeten worden als afval (landfill) en dat is ongewenst. Daarom is voor DSL-01 de biologische zwavelverwijdering de best beschikbare techniek (BBT).

Bij een juiste dosering van micronutriënten wordt voldaan aan de minimalisatieverplichting voor zowel lucht- als wateremissies. Om invulling te geven aan de minimalisatieverplichting worden de micronutriënten uitsluitend gedoseerd als een tekort binnen de bioreactor wordt vastgesteld.
De verwijdering van zwavelwaterstof en daarmee de rendementen van de biologische zuivering, worden constant gemonitord. Op basis van de prestaties van de biologische zuivering wordt beoordeeld of dosering van micronutriënten noodzakelijk is. Op deze wijze wordt dosering van micronutriënten tot een minimum beperkt.

4.2 Stoffen met waterbezwaarlijkheid klasse A

DSL-01 maakt gebruik van '*fire-extinguishing foam*' met een waterbezwaarlijkheid klasse A.
Dit blusschuimmiddel komt vrij bij brandoefeningen en is een alternatief voor PFAS-houdende blusmiddelen. Bij brandoefeningen en in de reguliere bedrijfssituatie kan er geen emissie van blusschuim naar het schoon afvalwaterriool plaatsvinden. Bij een calamiteit kunnen er afsluiters in de bedrijfsriolering en afwateringssloten worden bediend om bluswater in te perken. Voor volledigheid is dit blusschuimmiddel opgenomen in de ABM-toets. Echter, wegens de beperkte en sporadische toepassing wordt dit blusschuimmiddel niet opgenomen in de immissietoets.

4.3 Stoffen met waterbezwaarlijkheid klasse B

Een aantal stoffen met waterbezwaarlijkheid klasse B kunnen in contact komen met afvalwater.
Het gaat hierbij om;

- Ketelwaterchemicaliën
- Macronutriënten
- Wasmiddel van de hydrothermale voorbehandeling
- Katalysator van de amine installatie

De katalysator van de amine installatie, MDEA, kan via de spui van de ammoniak-scrubber in contact komen met het te lozen afvalwater. Aangezien MDEA bij verdamping in de installatie achterblijft, is de daadwerkelijke emissie minimaal (<0,001 mg/l). Toch wordt de stof, vanwege contact met het afvalwater, meegenomen in de ABM-toets. Dit betreft een uiterst worst-case scenario. MDEA wordt daarentegen niet opgenomen in de immissietoets.

Het wasmiddel voor de hydrothermale voorbehandeling, citroenzuur, komt onder normale bedrijfsvoering niet in contact met het te lozen (afval)water. Gezien citroenzuur in grote hoeveelheden wordt toegepast bij het wassen van de grondstoffen, is deze stof voor volledigheid opgenomen in de ABM-toets. Citroenzuur wordt daarentegen niet opgenomen in de immissietoets.

De aanwezige stoffen met waterbezwaarlijkheid klasse B zijn biologisch goed afbreekbaar.
Deze indirecte lozing vindt plaats via North Water waar gezuiverd wordt via de straat met de MBR (membraanbioreactor). In deze straat wordt biologisch gezuiverd. Wegens de goede en snelle biologische afbraak van de aanwezige stoffen met waterbezwaarlijkheid klasse B, worden deze stoffen vergaand verwijderd uit het geloosde afvalwater. Om deze reden wordt voldoende invulling gegeven aan de benodigde saneringsinspanning van deze stoffen.

4.4 Stoffen met waterbezwaarlijkheid klasse C

Een aantal stoffen met waterbezwaarlijkheid klasse C kunnen in contact komen met afvalwater.
Het gaat hierbij om;

- Ketelwaterchemicaliën
- Koelwatermiddelen
- pH regulatie

De aanwezige stoffen met waterbezwaarlijkheid klasse C betreffen natuureigen componenten.
Voor deze stoffen geldt dat geen aanvullende saneringsinspanning benodigd is.

5 Conclusie

In opdracht van DSL-01 heeft TAUW een ABM-toets uitgevoerd op basis van de ABM 2016 (inclusief handleiding). De ABM-toets is uitgevoerd voor een voorziene indirecte lozing van afvalwater op de AWZI van North water.

Op basis van de resultaten van de toetsing kan worden geconcludeerd dat 4 (hulp)stoffen onder waterbezwaarlijkheid klasse C vallen, 7 onder waterbezwaarlijkheid B, 1 onder waterbezwaarlijkheid A en 2 onder waterbezwaarlijkheid Z.

De ontwerpeisen van DSL-01 zijn gebaseerd op het toepassen van de best beschikbare technieken (BBT) en stoffen met een zo laag mogelijke waterbezwaarlijkheid. Daarom is gekozen voor biologische verwijdering van zwavelwaterstof. Dit proces gebruikt bacteriën om de zwavelwaterstof om te zetten naar onschadelijk zwavel, wat mogelijk kan worden ingezet als meststof.

Er zijn 2 micronutriënten mengsels voorzien die onder klasse Z vallen. Deze zijn noodzakelijk om de bacteriegroei te waarborgen en dus voor het functioneren van de bioreactor wat als ondersteunend proces nodig is in het ontwerp van DSL-01. Toepassing van deze (hulp)stoffen wordt zoveel mogelijk geminimaliseerd.

Kenmerk R023-1276528JJB-V03-ivl-NL

Bijlage 1 Veiligheidsbladen

Material Safety Data Sheet

Product Name: ***Dynamic Fuels*** [TM] **R-8 Renewable Jet Fuel** April 29, 2011

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **R-8 Renewable Jet Fuel**
Synonyms: R-8, Renewable Jet Fuel, Hydrotreated Renewable Jet, HRJ, HR-J8 Synthetic Paraffinic Kerosene, Bio-SPK
Product Code: SC R8
MSDS Code: not applicable
Chemical Family: Hydrocarbon

Responsible Party: Dynamic Fuels LLC
36187 Highway 30
Geismar, LA 70734

For product information contact Dynamic Fuels LLC:
8am – 4pm, U.S. Central Time, Mon – Fri: (225) 744-1306

EMERGENCY INFORMATION

24-Hour Emergency Telephone Number:

For Chemical Emergencies:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

Health Hazards: Aspiration hazard if swallowed. Can enter lungs and cause damage. Avoid contact with eyes. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards: OSHA combustible liquid. Keep away from heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment).

Physical Form: Liquid
Appearance: Colorless *(may contain a dye)*
Odor: Hydrocarbon

NFPA HAZARD CLASS:

1	Health
2	Flammability
0	Reactivity

2. COMPOSITION / INFORMATION ON INGREDIENTS			
#	Component	CAS No.	Approx. Wt%
1	Fuels, jet aircraft, C_{7-18}-alkane branched and linear	437986-20-4	100
Note 1: May contain up to 0.5 wt% performance additive(s). Refer to product data sheet.			

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye Contact: Contact may cause mild eye irritation including stinging, watering, and redness. No chronic effects known.

Skin Contact: Can cause irritation from repeated exposure. No harmful effects from skin absorption are expected.

Inhalation (Breathing): Expected to have a low degree of toxicity by inhalation. Mists may be irritating to breathing passages.

Ingestion (Swallowing): This may be harmful if ingested. Not a likely source of chronic exposure. ASPIRATION HAZARD – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs & Symptoms: Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, and fatigue), pulmonary edema (accumulation of fluids in the lungs) and pneumonitis (inflammation of the lungs).

Aggravated Medical Conditions: Conditions aggravated by exposure may include skin or respiratory (asthma-like) disorders.

Developmental: No data.

Reproductive: No implications

Cancer: No ingredients included on cancer lists.

Target Organs: No data.

Other Comments: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as Solvent or Painters' Syndrome). Intentional misuse by deliberately concentrating and inhaling this material may be harmful or fatal.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, flush eyes with clean water for at least 15 minutes. If symptoms persist, seek medical attention.

Skin: First aid is not normally required. However, it is good practice to wash any chemical from the skin. If skin irritation develops, wash with soap and water, and seek medical attention. Remove affected clothes, rinse off product, and wash clothes before reuse.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from the source of exposure and into fresh air. Seek immediate medical attention.

Ingestion (Swallowing): ASPIRATION HAZARD: Do not induce vomiting because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek prompt medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties: Flash Point (PMCC): ≥100°F (38°C)
OSHA Flammability Class: Combustible Liquid Class II
LEL (vol%): ~0.6 UEL (vol%): ~4.7
Autoignition Temperature: 257ºC (494ºF)

Combustion Products: Carbon dioxide, carbon monoxide, water vapor.

Extinguishing Media: Dry chemical, Halon, carbon dioxide, any ABC Class extinguisher, or alcohol or polymer foam is recommended. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Special Fire Fighting Procedures & Precautions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk (may spread the fire).

Unusual Fire & Explosion Hazards: This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). Heavy, black smoke is produced in a fire. Heated liquid can release vapors that may readily form flammable mixtures at or above its flash point. If container is not properly cooled, it can rupture in the heat of a fire.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended. Stay upwind and away from spill/release. Notify persons downwind of spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8). Prevent large amounts of spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material (e.g., sand or vermiculite). Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. **If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).**

7. HANDLING & STORAGE

Handling: Flammable liquid. Do not expose to open flame, sparks, or static electricity. Can accumulate static charge by flow or agitation. Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Do not enter confined spaces such as tanks or pits without following proper entry procedures such 29 CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Section 8). Wash thoroughly after handling. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practice.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks or other sources of ignition. They may explode and cause injury bunged, and promptly shipped to the supplier or a drum conditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA Regulations, ANSI Z49.1 and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame". Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits

Substance Name	CAS No.	Limit ppm	Type
Fuels, jet aircraft, C_{7-18}-alkane branched and linear	437986-20-4	100	TWA

Note: Country, state, local, or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Personal Protective Equipment (PPE) and Protective Measures

Respiratory Protection: None normally required. A NIOSH certified air-purifying respirator with an organic vapor cartridge may be used under conditions where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air-supplied respirator if there is potential for uncontrolled release, exposure levels are not known or any other circumstances where air-purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Protective Clothing: Not required based on the hazards of the material. However, it is considered good practice to wear impermeable gloves such as rubber, PVC, or neoprene when handling chemicals.

Eye/Face Protection: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Additional Protective Measures: A well ventilated work environment is recommended. If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).
A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed. Vapors may collect in low places and may ignite or cause asphyxiation.

9. PHYSICAL & CHEMICAL PROPERTIES

Note: Unless otherwise indicated, values are determined at 68°F (20°C) and atmospheric pressure (760 mm Hg). Data is typical, individual samples may vary.

Flash Point (PMCC): ≥100°F (38°C)
Autoignition Temperature: 257°C (494°F)
Appearance: Colorless *(may contain a dye)*
Physical State: Liquid
Odor: Hydrocarbon
Vapor Pressure: <0.3 kPa @ 20ºC
Vapor Density (air = 1): >1
Viscosity at 40°C: 1.9-4.1 cP
Approx. Boiling Range: 260-550°F (127-288°C)
Freezing Point: -40°F (-40°C)
Solubility in water: Insoluble
pH: not applicable
Density: 0.76 g/ml@ 15ºC
VOC Content: 760 g/l
California Rule 102 (66): Contains no photo chemically active materials.

10. STABILITY & REACTIVITY

Chemical Stability: Stable under normal conditions of storage and handling. Combustible liquid. Vapor from heated liquid can cause a flash fire.

Conditions to Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Incompatible Materials: Avoid contact with strong oxidizing agents.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

No definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity. See information in Section 3.

12. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic of ignitability (D001). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container rinse material could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

13. TRANSPORT INFORMATION

	USA DOT	
Proper Shipping Name:	Hydrocarbons, liquid, n.o.s.	
Hazard Class & Div.:	Flammable liquid	
ID Number:	UN3295	
Packing Group:	III	
Label Codes:	Flammable liquid	
Placard(s):	Flammable	
Notes:	1	

1. Static Accumulator (50 picosiemens or less) unless performance additive has been added to mitigate static accumulation – consult appropriate product data sheet.

14. REGULATORY INFORMATION

This material is listed on the following country inventory lists: no data

This material contains the following list of chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372: none known

This material contains the following list of chemicals subject to the reporting requirements of California Proposition 65: none known

NTP, IARC, or OSHA has not identified this material as a carcinogen.

EPA (CERCLA) reportable quantity: none known

For details on your regulatory requirements you should contact the appropriate agency in your state or country.

15. DISCLAIMER OF EXPRESSED & IMPLIED WARRANTIES
The information in this document is believed to be correct as of the date issued. The product is the subject of continued further experimentation and testing. HOWEVER, NO WARRANTY OF MERCHANT LIABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. This information and product are furnished on the condition that the person receiving them shall make his/her own determination as to the suitability of the product for his/her particular purpose and on the condition that he/she assume the risk of his/her use thereof.

UNIVAR USA INC.
ISSUE DATE:2015-04-29
Annotation:

Distributed By:

2 Madison Ave. Larchmont, NY 10538
Ph: 914-834-1881 Fax: 914-834-4611

MSDS NO:10000088
VERSION:001 2015-04-29

Univar
3075 Highland Pkwy STE 200
Downers Grove, IL 60515
425-889-3400

SAFETY DATA SHEET

1. Identification

Product identifier: CAUSTIC SODA 50%

Other means of identification

Synonyms: Sodium Hydroxide

SDS number: 000100000088

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Emergency telephone number:For emergency assistance Involving chemicals

call CHEMTREC day or night at: 1-800-424-9300. CHEMTREC INTERNATIONAL Tel# 703-527-3887

2. Hazard(s) identification

Hazard classification

Health hazards

Acute toxicity (Oral)	Category 4
Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1
Environmental hazards Acute hazards to the aquatic environment	Category 3

Label elements

Hazard symbol

Signal word	Danger
Hazard statement	Corrosive. Harmful if swallowed. Causes severe skin burns and eye damage.
Precautionary statement	
Prevention	Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust or mists. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF SWALLOWED: Call a POISON CENTER/doctor/ if you feel unwell. Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Specific treatment (see this label). Wash contaminated clothing before reuse.
Storage	Store in a closed container. Keep container tightly closed. Store in a well-ventilated place. Store in a dry place. Store locked up.
Disposal	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification	None.

3. Composition/information on ingredients

Substances

Chemical identity	Common name and synonyms	CAS number	Content in percent (%)*
Sodium hydroxide		1310-73-2	>=48 - <=52%
Water		7732-18-5	>=48 - <=52%
Sodium Chloride		7647-14-5	>=0 - <=5%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: CAUTION! First aid personnel must be aware of own risk during rescue!

Ingestion: Do NOT induce vomiting. Never give liquid to an unconscious person. Get medical attention immediately.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. Perform artificial respiration if breathing has stopped. Get medical attention immediately.

Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Eye contact: If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

Most important symptoms/effects, acute and delayed

Symptoms: No data available.

Indication of immediate medical attention and special treatment needed

Treatment: No data available.

5. Fire-fighting measures

General fire hazards: No data available.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use: Powder. In case of fire in the surroundings: all extinguishing agents allowed.

Unsuitable extinguishing media: No data available.

Specific hazards arising from the chemical:	No data available.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	No data available.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Keep unauthorized personnel away.
Methods and material for containment and cleaning up:	Absorb spillage with non-combustible, absorbent material. Dike for later disposal.

7. Handling and storage

Precautions for safe handling:	Use personal protective equipment as required. Use only with adequate ventilation. Container must be kept tightly closed.
Conditions for safe storage, including any incompatibilities:	No data available.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Chemical identity	Type	Exposure Limit values	Source
Sodium hydroxide	Ceiling	2 mg/m3	US. ACGIH Threshold Limit Values (03 2013)
	Ceil_Time	2 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	2 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	Ceiling	2 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	Ceiling	2 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Sodium hydroxide - Particulate.	ST ESL	20 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (02 2013)
	AN ESL	2 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (02 2013)
Sodium hydroxide	Ceiling	2 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (02 2012)

Appropriate engineering controls No data available.

Individual protection measures, such as personal protective equipment

General information: Use personal protective equipment as required. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned. Practice good housekeeping.

Eye/face protection: Use personal protective equipment as required. Wear goggles/face shield.

Skin protection

Hand protection: No data available.

Other: No data available.

Respiratory protection:	No data available.
Hygiene measures:	No data available.

9. Physical and chemical properties

Physical state:	Liquid
Form:	No data available.
Color:	No data available.
Odor:	No data available.
Odor threshold:	No data available.
pH:	14
Melting point/freezing point:	-12 - 10 °C
Initial boiling point and boiling range:	105 - 140 °C
Flash Point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	No data available.
Solubility(ies)	
Solubility in water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No data available.
Chemical stability:	No data available.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	No data available.
Incompatible materials:	No data available.
Hazardous decomposition products:	No data available.

11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Ingestion:	No data available.
Inhalation:	No data available.
Skin contact:	No data available.
Eye contact:	No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: ATEmix (): 353.488372 mg/kg

Dermal

Product:

Not classified for acute toxicity based on available data.

Inhalation

Product: No data available.

Specified substance(s):

Sodium Chloride — LC 50 (Rat,): > 42 mg/l 2 (reliable with restrictions)

Repeated dose toxicity

Product: No data available.

Skin corrosion/irritation

Product: No data available.

Serious eye damage/eye irritation

Product: No data available.

Respiratory or skin sensitization

Product: No data available.

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ cell mutagenicity
In vitro
Product: No data available.
In vivo
Product: No data available.
Reproductive toxicity
Product: No data available.
Specific target organ toxicity - single exposure
Product: No data available.
Specific target organ toxicity - repeated exposure
Product: No data available.
Aspiration hazard
Product: No data available.
Other effects: No data available.

12. Ecological information

Ecotoxicity:
Acute hazards to the aquatic environment:
Fish
Product: No data available.
Specified substance(s):
Sodium hydroxide — LC 50 (Western mosquitofish (Gambusia affinis), 24 h): 125 mg/l Mortality LC 50 (Guppy (Poecilia reticulata), 24 h): 145 mg/l Mortality LC 50 (Goldfish (Carassius auratus), 24 h): 160 mg/l Mortality LC 50 (Bony fish superclass (Osteichthyes), 48 h): 33 - 100 mg/l Mortality LC 50 (Western mosquitofish (Gambusia affinis), 48 h): 125 mg/l Mortality

Aquatic invertebrates
Product: No data available.
Specified substance(s):
Sodium hydroxide — EC 50 (Water flea (Ceriodaphnia dubia), 48 h): 34.59 - 47.13 mg/l Intoxication LC 50 (Common shrimp, sand shrimp (Crangon crangon), 48 h): 33 - 100 mg/l Mortality LC 50 (Cockle (Cerastoderma edule), 48 h): 330 -

1,000 mg/l Mortality

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and degradability

Biodegradation

Product: No data available.

BOD/COD ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration factor (BCF)

Product: No data available.

Partition coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Sodium hydroxide	No data available.
Water	No data available.
Sodium chloride	No data available.

Known or predicted distribution to environmental compartments

Water	No data available.

13. Disposal considerations

Disposal instructions: No data available.

Contaminated packaging: No data available.

14. Transport information

DOT

UN number:	UN 1824
UN proper shipping name:	Sodium hydroxide solution
Transport hazard class(es)	
Class:	8
Label(s):	8
Packing group:	II
Marine Pollutant:	Not regulated.

Special precautions for user:	–

IMDG

UN number:	UN 1824
UN proper shipping name:	SODIUM HYDROXIDE SOLUTION
Transport hazard class(es)	
Class:	8
Label(s):	8
EmS No.:	F-A, S-B
Packing group:	II
Marine Pollutant:	Not regulated.
Special precautions for user:	–

IATA

UN number:	UN 1824
Proper Shipping Name:	Sodium hydroxide solution
Transport hazard class(es):	
Class:	8
Label(s):	8
Packing group:	II
Environmental hazards	Not regulated.
Special precautions for user:	–
Other information	
Passenger and cargo aircraft:	Allowed.
Cargo aircraft only:	Allowed.

15. Regulatory information

US federal regulationsUS. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

Sodium hydroxide Reportable quantity: 1000 lbs.

Superfund amendments and reauthorization act of 1986 (SARA)

Hazard categories

Not listed.

SARA 302 Extremely hazardous substance

None present or none present in regulated quantities.

SARA 304 Emergency release notification

Chemical identity	RQ
Sodium hydroxide	1000 lbs.

SARA 311/312 Hazardous chemical

Chemical identity	Threshold Planning Quantity
Sodium hydroxide	500 lbs
Sodium Chloride	500 lbs

SARA 313 (TRI reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

Sodium hydroxide Reportable quantity: 1000 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US state regulations

US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

Sodium hydroxide Listed

US. Massachusetts RTK - Substance List

Sodium hydroxide Listed

US. Pennsylvania RTK - Hazardous Substances

Sodium hydroxide Listed

US. Rhode Island RTK

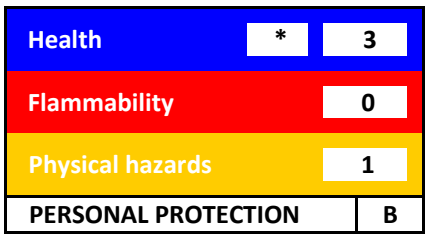
Sodium hydroxide Listed

Version: 1.2
Revision date: 04/29/2015

Inventory Status: Australia AICS:	Not in compliance with the inventory.
Canada DSL Inventory List:	Not in compliance with the inventory.
EU EINECS List:	Not in compliance with the inventory.
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	Not in compliance with the inventory.
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	Not in compliance with the inventory.
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16.Other information, including date of preparation or last revision

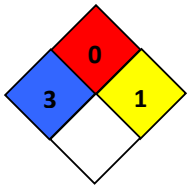
HMIS Hazard ID

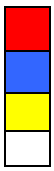


B - Safety Glasses & Gloves

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; *Chronic health effect

NFPA Hazard ID





Flammability
Health
Reactivity
Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Issue date:	04/29/2015
Revision date:	No data available.
Version #:	1.2
Further information:	No data available.

Version: 1.2
Revision date: 04/29/2015

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

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This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

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425-889-3400

SAFETY DATA SHEET

1. Identification

Product identifier: CITRIC ACID 10-50%

Other means of identification

SDS number: 000100000484

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Emergency telephone number:For emergency assistance Involving chemicals

call CHEMTREC day or night at: 1-800-424-9300. CHEMTREC INTERNATIONAL Tel# 703-527-3887

2. Hazard(s) identification

Hazard classification

Health hazards

Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1

Label elements

Hazard symbol

Signal word Warning

Hazard statement	Causes severe skin burns and eye damage.
Precautionary statement	
Prevention	Do not breathe dust or mists. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Specific treatment (see this label). Wash contaminated clothing before reuse.
Storage	Store locked up. Store in a closed container.
Disposal	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification	None.

3. Composition/information on ingredients

Substances

Chemical identity	Common name and synonyms	CAS number	Content in percent (%)*
Citric Acid (Ascorbic Acid)		77-92-9	>=10 - <=50%
Water		7732-18-5	>=50 - <=90%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Ingestion: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. Perform artificial respiration if breathing has stopped.

Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Eye contact: Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms: No data available.

Indication of immediate medical attention and special treatment needed

Treatment: No data available.

5. Fire-fighting measures

General fire hazards: No data available.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: No data available.

Specific hazards arising from the chemical: No data available.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	No data available.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	No data available.
Methods and material for containment and cleaning up:	Absorb spillage with non-combustible, absorbent material. Dike for later disposal.

7. Handling and storage

Precautions for safe handling:	Use personal protective equipment as required. Use only with adequate ventilation. Store away from incompatible materials.
Conditions for safe storage, including any incompatibilities:	No data available.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None of the components have assigned exposure limits.

Appropriate engineering controls	No data available.

Individual protection measures, such as personal protective equipment

General information:	No data available.
Eye/face protection:	No data available.
Skin protection	
Hand protection:	No data available.
Other:	No data available.
Respiratory protection:	No data available.
Hygiene measures:	No data available.

9. Physical and chemical properties

Physical state:	Liquid
Form:	No data available.
Color:	No data available.

Odor:	No data available.
Odor threshold:	No data available.
pH:	2
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	100 °C
Flash Point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	No data available.
Solubility(ies)	
Solubility in water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No data available.
Chemical stability:	No data available.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	No data available.
Incompatible materials:	No data available.
Hazardous decomposition products:	No data available.

11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Ingestion: No data available.
Inhalation: No data available.
Skin contact: No data available.
Eye contact: No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: Not classified for acute toxicity based on available data.

Dermal

Product: ATEmix (): 2,000 mg/kg

Inhalation

Product: No data available.

Repeated dose toxicity

Product: No data available.

Skin corrosion/irritation

Product: No data available.

Serious eye damage/eye irritation

Product: No data available.

Respiratory or skin sensitization

Product: No data available.

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ cell mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specific target organ toxicity - single exposure
Product: No data available.
Specific target organ toxicity - repeated exposure
Product: No data available.
Aspiration hazard
Product: No data available.
Other effects: No data available.

12. Ecological information

Ecotoxicity:
Acute hazards to the aquatic environment:
Fish
Product: No data available.
Specified substance(s):
Citric Acid (Ascorbic Acid) LC 50 (Carp (Leuciscus idus melanotus), 48 h): 440 mg/l Mortality LC 50 (Carp (Leuciscus idus melanotus), 48 h): 760 mg/l Mortality
Aquatic invertebrates
Product: No data available.
Specified substance(s):
Citric Acid (Ascorbic Acid) LC 50 (Green or European shore crab (Carcinus maenas), 48 h): 160 mg/l Mortality
Chronic hazards to the aquatic environment:
Fish
Product: No data available.
Aquatic invertebrates
Product: No data available.
Toxicity to Aquatic Plants
Product: No data available.
Persistence and degradability
Biodegradation
Product: No data available.
BOD/COD ratio
Product: No data available.
Bioaccumulative potential
Bioconcentration factor (BCF)
Product: No data available.
Partition coefficient n-octanol / water (log Kow)
Product: No data available.
Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Citric acid	No data available.
Water	No data available.

Known or predicted distribution to environmental compartments

Water	No data available.

13. Disposal considerations

Disposal instructions: No data available.
Contaminated packaging: No data available.

14. Transport information

Not regulated for US domestic ground transportation.

15. Regulatory information

US federal regulationsUS. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.
CERCLA Hazardous Substance List (40 CFR 302.4):
None present or none present in regulated quantities.
Superfund amendments and reauthorization act of 1986 (SARA)
Hazard categories
Not listed.
SARA 302 Extremely hazardous substance
None present or none present in regulated quantities.
SARA 304 Emergency release notification
None present or none present in regulated quantities.
SARA 311/312 Hazardous chemical

Chemical identity	Threshold Planning Quantity
Citric Acid (Ascorbic Acid)	500 lbs

SARA 313 (TRI reporting)
None present or none present in regulated quantities.
Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)
None present or none present in regulated quantities.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.
US state regulations
US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

No ingredient regulated by NJ Right-to-Know Law present.

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

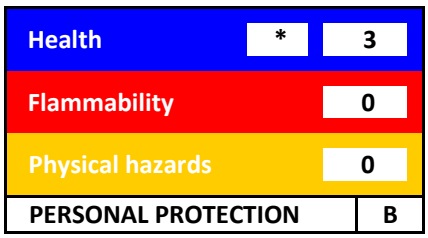
No ingredient regulated by RI Right-to-Know Law present.

Version: 1.0
Revision date: 08/27/2015

Inventory Status: Australia AICS:	Not in compliance with the inventory.
Canada DSL Inventory List:	Not in compliance with the inventory.
EU EINECS List:	On or in compliance with the inventory
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	Not in compliance with the inventory.
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	Not in compliance with the inventory.
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16.Other information, including date of preparation or last revision

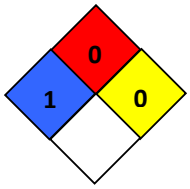
HMIS Hazard ID

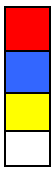


B - Safety Glasses & Gloves

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; *Chronic health effect

NFPA Hazard ID





Flammability
Health
Reactivity
Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Issue date:	08/27/2015
Revision date:	No data available.
Version #:	1.0
Further information:	No data available.

Version: 1.0
Revision date: 08/27/2015

Univar USA Inc Safety Data Sheet

For Additional Information contact SDS Coordinator during business hours, Pacific time: (425) 889-3400

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Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

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This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

VEILIGHEIDSINFORMATIEBLAD
ZWAVELZUUR 51 - 99%

RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

1.1. Productidentificatie

Productnaam	ZWAVELZUUR 51 - 99%
Product nummer	22901
Synoniemen; handelsnamen	DIPPING ACID, HYDROGEN SULPHATE, NORDHAUSEN ACID, OIL OF VITRIOL, SPIRIT OF SULPHUR, VITRIOL BROWN OIL, Sulphuric acid 96% Acipro Plus, Sulphuric acid Puriss, Sulphuric acid chem. pure 96%, SULPHURIC ACID 98 - 99%, SULPHURIC ACID 98-99% Q.P, ZWAVELZUUR 78% OPL, ZWAVELZUUR 96% OPL, ZWAVELZUUR CP 96% OPL, SULPHURIC ACID 63.5%, SULPHURIC ACID 97%, SULPHURIC ACID 70%, SULPHURIC ACID 69% SOL, SULPHURIC ACID 90%, ZWAVELZUUR 96%, SULPHURIC ACID 96% UNI 899:2009, SULPHURIC ACID HG 96% SOL, ZWAVELZUUR CP 96% OPL PVS, SULPHURIC ACID 98% BP, SULPHURIC ACID 98% AR, ZWAVELZUUR MAX. 97%, ZWAVELZUUR 96% CZ, ZWAVELZUUR 96% FCC ED. 7, ZWAVELZUUR 65%, ZWAVELZUUR 94%, ZWAVELZUUR 93%, ZWAVELZUUR 96% UM, SULPHURIC ACID 96% SOL, HYDREX 9536, SULPHURIC ACID 96% AR
REACH registratienummer	01-2119458838-20-XXXX
CAS-nummer	7664-93-9
EU catalogusnummer	016-020-00-8
EG-nummer	231-639-5

1.2. Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geïdentificeerd gebruik	Industriële toepassingen Chemisch tussenproduct laboratorium reagens

1.3. Details betreffende de verstrekker van het veiligheidsinformatieblad

Leverancier

Univar Zwijndrecht N.V.
Noordweg 3
3336 LH Zwijndrecht
Nederland
+31 78 6250000
+31 78 6250050
sds@univar.com

1.4. Telefoonnummer voor noodgevallen

Telefoonnummer voor noodgevallen	SGS - +32 (0) 3 575 55 55 (24h - Ondersteuning in de lokale taal)
Nationaal telefoonnummer voor noodgevallen	Nationaal Vergiftigingen Informatie Centrum.Tel +31 30 2748888 (Uitsluitend bestemd om professionele hulpverleners te informeren bij acute vergiftigingen)
Sds No.	22901

RUBRIEK 2: Identificatie van de gevaren

2.1. Indeling van de stof of het mengsel

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Indeling (EC 1272/2008)

Fysische gevaren	Niet Ingedeeld
Gezondheidsgevaren	Skin Corr. 1A - H314 Eye Dam. 1 - H318
Milieugevaren	Niet Ingedeeld
Indeling (67/548/EEC) of (1999/45/EC)	C;R35.

2.2. Etiketteringselementen

EG-nummer	231-639-5

Pictogram

Signaalwoord	Gevaar
Gevarenaanduiding	H314 Veroorzaakt ernstige brandwonden en oogletsel
Veiligheidsaanbeveling	P280 Beschermende handschoenen/ beschermende kleding/ oogbescherming/ gelaatsbescherming dragen. P301+P330+P331 NA INSLIKKEN: de mond spoelen — GEEN braken opwekken. P303+P361+P353 BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen/afdouchen. P304+P340 NA INADEMING: de persoon in de frisse lucht brengen en ervoor zorgen dat deze gemakkelijk kan ademen. P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen. P313 Een arts raadplegen.

2.3. Andere gevaren

Deze stof is niet ingedeeld als PBT of zPzB overeenkomstig de huidige EU criteria.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

3.1. Stoffen

Productnaam	ZWAVELZUUR 51 - 99%
REACH registratienummer	01-2119458838-20-XXXX
EU catalogusnummer	016-020-00-8
CAS-nummer	7664-93-9
EG-nummer	231-639-5
Samenstelling opmerkingen	De vermelde gegevens zijn in overeenkomst met de meest recente EG-richtlijnen.

3.2. Mengsels

Chemische Naam	Sulphuric acid

RUBRIEK 4: Eerstehulpmaatregelen

4.1. Beschrijving van de eerstehulpmaatregelen

Inademing	Breng de getroffen persoon direct in de frisse lucht. Zoek medische ondersteuning.

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Inslikken	Breng getroffen persoon in de frisse lucht en houdt deze warm en rustig in een positie gemakkelijk voor ademhaling. Geen braken opwekken. Raadpleeg onmiddellijk een arts.
Huidcontact	Besmette kleding onmiddellijk verwijderen en de huid wassen met water en zeep. Raadpleeg onmiddellijk een arts.
Oogcontact	Spoel onmiddellijk met volop water. Verwijder eventuele contactlenzen en trek oogleden ver uit elkaar. Doorgaan met spoelen gedurende tenminste 15 minuten. Raadpleeg onmiddellijk een arts. Doorgaan met spoelen.

4.2. Belangrijkste acute en uitgestelde symptomen en effecten

Inademing	Inademen van damp of mist kan longoedeem veroorzaken.
Inslikken	Veroorzaakt ernstige brandwonden.
Huidcontact	Veroorzaakt ernstige brandwonden.
Oogcontact	Veroorzaakt ernstige brandwonden. Dit product is sterk bijtend. Veroorzaakt ernstige brandwonden en oogletsel Onmiddellijke eerste hulp is noodzakelijk.

4.3. Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling

Opmerkingen voor de arts	Geen specifieke aanbevelingen. Bij twijfel onmiddellijk een arts raadplegen.

RUBRIEK 5: Brandbestrijdingsmaatregelen

5.1. Blusmiddelen

Geschikte blusmiddelen	Schuim, koolzuur of bluspoeder.
Ongeschikte blusmiddelen	Gebruik geen waterstraal als blusmiddel, dit zal de brand uitbreiden.

5.2. Speciale gevaren die door de stof of het mengsel worden veroorzaakt

Specifieke gevaren	Oxiden van de volgende stoffen: Zwavel. Reacties met de volgende stoffen kunnen warmte genereren: Water
Gevaarlijke verbrandingsproducten	Vuur of hoge temperaturen veroorzakend: Oxides van: Zwavel.

5.3. Advies voor brandweerlieden

Speciale beschermde uitrusting voor brandweerlieden	Draag overdruk persluchtapparatuur (SCBA) en toepasselijke beschermende kleding.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

6.1. Persoonlijke voorzorgsmaatregelen, beschermingsmiddelen en noodprocedures

Persoonlijke voorzorgsmaatregelen	Volg de voorzorgsmaatregelen voor veilig hanteren als beschreven in dit veiligheidsinformatieblad. Vermijd inademen van dampen en contact met huid en ogen. Zorg voor adequate ventilatie.

6.2. Milieuvoorzorgsmaatregelen

Milieuvoorzorgsmaatregelen	Vermijd dat gelekte stoffen of aflopend materiaal terecht komt in afvoeren, riolering of waterlopen. Lekkage of ongecontroleerde lozing op waterlopen moet onmiddellijk worden gemeld aan het Milieu-agentschap of andere betrokken autoriteiten.

6.3. Insluitings- en reinigingsmethoden en -materiaal

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Reinigingsmethoden Neutraliseer gelekte stof met vergruisd kalksteen, gebluste kalk (calcium hydroxide), soda (natrium carbonaat) of natrium bicarbonaat. Spoel verontreinigd gebied met veel water. Verzamel en plaats in geschikte afvalcontainers en sluit stevig af. Voor afvalverwijdering, zie rubriek 13.

6.4. Verwijzing naar andere rubrieken

Verwijzing naar andere rubrieken Draag beschermende kleding als beschreven in Sectie 8 van dit veiligheidsinformatieblad.

RUBRIEK 7: Hantering en opslag

7.1. Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel

Voorzorgen voor gebruik Vermijd morsen/lekken. Aanraking met de ogen en de huid vermijden. Vermijd inademen van dampen of spray/nevel. Zorg voor adequate ventilatie. Voeg nooit rechtstreeks water aan dit product toe omdat dit een heftige reactie of koken kan veroorzaken. Verdun altijd door het product voorzichtig in water te gieten.

7.2. Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten

Opslag voorzorgsmaatregelen Kan sommige kunststoffen, rubber en coatings aantasten. Bewaar in goed gesloten, originele verpakking op een goed ventileerde plaats. Bescherm tegen bevriezing en direct zonlicht. Niet gedurende langere tijd opslaan. Niet in grote hoeveelheden opslaan. Gescheiden opslaan van de volgende stoffen: Reducerende stoffen. Verwijderd houden van ontvlambare en brandbare materialen. Vocht. Metals Ontvlambare/brandbare stoffen. Ongeschikte verpakkingsmaterialen: Gangbare metalen.

Opslag klasse Bijtende stoffen opslag.

7.3. Specifiek eindgebruik

Specifiek eindgebruik De geïdentificeerde toepassingen voor dit product worden beschreven in paragraaf 1.2.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

8.1. Controleparameters

DNEL
Industrie - Inhalatie; Korte termijn locale effecten: 0.1 mg/m³
Industrie - Inhalatie; Lange termijn locale effecten: 0.05 mg/m³

PNEC
- Zoetwater; 0.0025 mg/l
- Sediment; 0.002 mg/l
- Zoutwater; 0.00025 mg/l
- Sediment (Zoutwater); 0.002 mg/l
- STP; 8.8 mg/l

8.2. Maatregelen ter beheersing van blootstelling

Beschermde uitrusting

Passende technische maatregelen Zorg voor adequate algemene en plaatselijke afzuiging.

Bescherming van de ogen/het gezicht Draag goed aansluitende chemische spatdichte zuurbril of een gelaatsscherm. EN 166

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Bescherming van de handen	De meest geschikte handschoen dient te worden gekozen in overleg met de handschoen leverancier/fabrikant, die informatie over de doorbraaktijd van het handschoenmateriaal kan geven. De geselecteerde handschoenen moeten een doorbraaktijd van minstens 8 uur hebben. Viton rubber (fluoro rubber). handschoen dikte 0.7mm EN 374
Andere huid- en lichaamsbescherming	Draag een rubber voorschoot. Draag rubber schoeisel.
Hygiënische maatregelen	Zorg voor oogspoelstation. Zorg voor douche faciliteiten in de buurt van de werkplek.
Ademhalingsbescherming	Indien ventilatie onvoldoende is dient geschikte adembescherming te worden gedragen. EN 136/140/145/143/149

RUBRIEK 9: Fysische en chemische eigenschappen

9.1. Informatie over fysische en chemische basiseigenschappen

Voorkomen	Olieachtige vloeistof. Hygroscopisch. Vloeistof.
Kleur	Kleurloos.
Geur	Reukloos.
Geurdrempelwaarde	Geen informatie beschikbaar.
pH	pH (geconcentreerde oplossing): <1
Smeltpunt	~18 - -7°C
Beginkookpunt en kooktraject	163 - 338°C
Vlampunt	Geen informatie beschikbaar.
Verdampingssnelheid	Geen informatie beschikbaar.
Verdampingsfactor	Geen informatie beschikbaar.
Ontvlambaarheid (vast, gas)	Geen informatie beschikbaar.
Bovenste/onderste ontvlambaarheids- of explosiegrenswaarden	Geen informatie beschikbaar.
Andere ontvlambaarheid	Geen informatie beschikbaar.
Dampspanning	0.04 - 1.3 kPa
Dampdichtheid	3.4
Relatieve dichtheid	1.41 - 1.83 @ @ 20°C
Bulk dichtheid	Geen informatie beschikbaar.
Oplosbaarheid(heden)	Oplosbaar in water.
Verdelingscoëfficiënt	log Pow: -2.20
Zelfontbrandingstemperatuur	Geen informatie beschikbaar.
Ontledingstemperatuur	Geen informatie beschikbaar.
Viscositeit	11 - 28 mPa s @ 20°C
Ontploffingseigenschappen	Geen informatie beschikbaar.
Ontplofbaar door de werking van een vlam	Geen informatie beschikbaar.

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Oxiderende eigenschappen Geen informatie beschikbaar.

9.2. Overige informatie

Refractie index Geen informatie beschikbaar.

Deeltjesgrootte Geen informatie beschikbaar.

Molecuulgewicht 98.08

Vluchtigheid Geen informatie beschikbaar.

Verzadigingsconcentratie Geen informatie beschikbaar.

Kritische temperatuur Geen informatie beschikbaar.

Vluchtige organische stof Geen informatie beschikbaar.

RUBRIEK 10: Stabiliteit en reactiviteit

10.1. Reactiviteit

Reactiviteit Reacties met de volgende stoffen kunnen warmte genereren: Water Organic materials De volgende stoffen kunnen heftig reageren met het product: Ontvlambare/brandbare stoffen. Basen - anorganisch. Basen - organisch. De volgende stoffen kunnen reageren met het product: Sterk reducerende agentia.

10.2. Chemische stabiliteit

Stabiliteit Stabiel bij normale omgevingstemperaturen en indien gebruikt als aanbevolen. Reageert met water.

10.3. Mogelijke gevaarlijke reacties

Mogelijkheid van gevaarlijke reacties Reacties met de volgende stoffen kunnen warmte genereren: Water

10.4. Te vermijden omstandigheden

Te vermijden omstandigheden Vermijd overmatige hitte gedurende langere tijd. Vermijd hitte, vlammen en andere ontstekingsbronnen. Water, vocht.

10.5. Chemisch op elkaar inwerkende materialen

Te vermijden materialen Sterke basen. Sterk oxiderende middelen. Sterk reducerende agentia. Water, stoom, water mengsels. Amines. Basen - anorganisch. Basen - organisch. Metals Organic materials Ontvlambare/brandbare stoffen.

10.6. Gevaarlijke ontledingsproducten

Gevaarlijke ontledingsproducten Oxiden van de volgende stoffen: Zwavel. Bij het toevoegen van water, reageert het product doordat een aantal metalen hydrogeen gas vormen, wat kan leiden tot de vorming van explosieve dampmengsels.

RUBRIEK 11: Toxicologische informatie

11.1. Informatie over toxicologische effecten

Acute toxiciteit - oraal

Acute toxiciteit bij inslikken (LD_{50} mg/kg) 2.140,0

Soort Rat

Huidcorrosie/-irritatie

Diergegevens Geen informatie beschikbaar.

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Ernstig oogletsel/oogirritatie

Ernstig oogletsel/oogirritatie	Geen informatie beschikbaar.

Sensibilisatie van de luchtwegen

Sensibilisatie van de luchtwegen	Geen informatie beschikbaar.

Sensibilisatie van de huid

Sensibilisatie van de huid	Geen informatie beschikbaar.

Mutageniteit in geslachtscellen

Gentoxiciteit - in vitro	Geen informatie beschikbaar.

Kankerverwekkendheid

Kankerverwekkendheid	Geen informatie beschikbaar.

Giftigheid voor de voortplanting

Giftigheid voor de voortplanting - vruchtbaarheid	Geen informatie beschikbaar.

Specifieke doelorgaantoxiciteit (STOT) bij eenmalige blootstelling

STOT - eenmalige blootstelling	Geen informatie beschikbaar.

Specifieke doelorgaantoxiciteit (STOT) bij herhaalde blootstelling

STOT - herhaalde blootstelling	Geen informatie beschikbaar.

Gevaar bij inademing

gevaar bij inademing	Geen informatie beschikbaar.

Inademing	Herhaalde blootstelling kan chronische irritatie van de bovenste luchtwegen veroorzaken. Tracheobronchitis, longoedeem.
Inslikken	Veroorzaakt ernstige brandwonden. Misselijkheid, overgeven. Vloeistof irriteert de slijmvliezen en kan buikpijn veroorzaken bij inslikken.
Huidcontact	Veroorzaakt brandwonden. Bijtend. Langdurig contact veroorzaakt ernstige weefselschade.
Oogcontact	Veroorzaakt ernstige brandwonden.

RUBRIEK 12: Ecologische informatie

Ecotoxiciteit	Gevaarlijk voor het milieu indien geloosd op waterlopen.

12.1. Toxiciteit

Toxiciteit	Niet giftig beschouwd voor vissen.
Acute giftigheid - vis	LC50, 96 uren: 42 mg/l,
Acute giftigheid - aquatische ongewervelde dieren	EC_{50}, : 29 mg/l, Daphnia magna

12.2. Persistentie en afbreekbaarheid

Persistentie en afbreekbaarheid	De afbreekbaarheid van het product is niet bekend.

12.3. Bioaccumulatie

Bioaccumulatiepotentieel	Het product bevat geen stoffen waarvan bioaccumulatie verwacht wordt.

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Verdelingscoëfficiënt log Pow: -2.20

12.4. Mobiliteit in de bodem

Mobiliteit Het product is oplosbaar in water.

12.5. Resultaten van PBT- en zPzB-beoordeling

Resultaten van een PBT- en zPzB-beoordeling Deze stof is niet ingedeeld als PBT of zPzB overeenkomstig de huidige EU criteria.

12.6. Andere schadelijke effecten

Andere nadelige effecten Geen bekend.

RUBRIEK 13: Instructies voor verwijdering

13.1. Afvalverwerkingsmethoden

Algemene informatie Niet doorboren of verbranden, zelfs wanneer leeg. Afval is als gevaarlijk afval ingedeeld.

Verwijderingsmethoden Voer afvalstoffen af naar een vergunninghoudende stortplaats in overeenstemming met de eisen van de plaatselijke afvalverwerkingsautoriteiten.

RUBRIEK 14: Informatie met betrekking tot het vervoer

Algemeen Draag beschermende kleding als beschreven in Sectie 8 van dit veiligheidsinformatieblad.

14.1. VN-nummer

VN nr. (ADR/RID) 1830

VN nr. (IMDG) 1830

VN nr. (ICAO) 1830

VN nr. (ADN) 1830

14.2. Juiste ladingnaam overeenkomstig de modelreglementen van de VN

Juiste vervoersnaam (ADR/RID) ZWAVELZUUR

Juiste vervoersnaam (IMDG) ZWAVELZUUR

Juiste vervoersnaam (ICAO) SULPHURIC ACID

Juiste vervoersnaam (ADN) ZWAVELZUUR

14.3. Transportgevarenklasse(n)

ADR/RID klasse 8

ADR/RID classificatiecode C1

ADR/RIC etiket 8

IMDG klasse 8

ICAO klasse/subklasse 8

ADN klasse 8

Transportetiket

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14.4. Verpakkingsgroep

ADR/RID verpakkingsgroep	II
IMDG verpakkingsgroep	II
ADN verpakkingsgroep	II
ICAO verpakkingsgroep	II

14.5. Milieugevaren

Milieugevaarlijke stof/mariene verontreinigende stof
Nee.

14.6. Bijzondere voorzorgen voor de gebruiker

Hulpdiensten	F-A, S-B
ADR vervoerscategorie	2
Noodmaatregelcode	2P
Gevaarsidentificatienummer (ADR/RID)	80
Tunnelbeperkingscode	(E)

14.7. Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code

Vervoer in bulk overeenkomstig bijlage II bij MARPOL 73/78 en de IBC-code	Niet bepaald.

RUBRIEK 15: Regelgeving

15.1. Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

EU wetgeving	Verordening (EG) nr. 1907/ 2006 van het Europees Parlement en de Raad van 18 december 2006 inzake de registratie en beoordeling van en de autorisatie en beperkingen ten aanzien van chemische stoffen (REACH) (zoals gewijzigd). Verordening(EG) nr. 1272/2008 van het Europees Parlement en de Raad van 16 december 2008 betreffende de indeling , etikettering en verpakking van stoffen en mengsels (zoals gewijzigd). Verordening(EU) Nr. 2015/830 van de Commissie van 28 mei 2015.

15.2. Chemischeveiligheidsbeoordeling

Een chemische veiligheidsbeoordeling is uitgevoerd.

Inventarissen

EU (EINECS/ELINCS)
Alle ingrediënten zijn vermeld of vrijgesteld.

RUBRIEK 16: Overige informatie

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Afkortingen en acroniemen die in het veiligheidsinformatieblad worden gebruikt

ATE: Acute toxiciteitsschattingen.
ADR: Europese Overeenkomst betreffende het internationale vervoer van gevaarlijke goederen over de weg.
ADN: Europese Overeenkomst betreffende het internationale vervoer van gevaarlijke goederen over de binnenwateren.
CAS: Chemical Abstracts Service.
DNEL: Afgeleide dosis zonder effect.
IATA: Internationale Luchtvervoersvereniging.
IMDG: International Maritime Dangerous Goods.
Kow: Verdelingscoëfficiënt octanol-water.
LC50: Concentratie die bij 50 % van een testpopulatie tot de dood leidt.
LD50: Dosis die bij 50 % van een testpopulatie tot de dood leidt) (mediane letale dosis).
PBT: Persistente, Bioaccumulerende en Toxische stof.
PNEC: Voorspelde concentratie zonder effect.
REACH: Registratie en beoordeling van en de autorisatie en beperkingen ten aanzien van chemische stoffen (EG) Nr 1907/2006.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
zPzB: Zeer Persistent en Zeer Bioaccumulerend.
IARC: International Agency for Research on Cancer.
MARPOL 73/78: Internationaal Verdrag ter voorkoming van verontreiniging door schepen van 1973, gewijzigd bij het Protocol van 1978.
cATpE: Omgerekende acute toxiciteitsschatting.
BCF: Bioconcentratiefactor.
BZV: Biochemische zuurstofvraag.
EC_{50}: De effectieve concentratie van een stof waarbij 50 % van de maximale respons optreedt.
LOAEC: Laagste concentratie waarbij een schadelijk effect werd vastgesteld.
LOAEL: Laagste dosis of concentratie waarbij een schadelijk effect werd vastgesteld.
NOAEC: Concentratie waarbij geen schadelijk effect werd vastgesteld.
NOAEL: Dosis of concentratie waarbij geen schadelijk effect werd vastgesteld.
NOEC: Concentratie zonder waargenomen effecten.
LOEC: Laagste concentratie waarbij een effect werd vastgesteld.
DMEL: Afgeleide dosis met minimaal effect.
EL50: Blootstelling limiet
hPa: Hectopascal
LL50: dodelijke belasting
OECD: Organisatie voor Economische Co-operatie en ontwikkeling
POW: Octanol-water-partitiecoëfficiënt
SCBA: onafhankelijke ademhalingsapparatuur
STP: rioolwaterzuiveringsinstallatie
VOC: vluchtige organische stoffen

Indeling, afkortingen en acroniemen

Acute Tox. = Acute toxiciteit
Aquatic Acute = Gevaar voor het aquatisch milieu (acuut)
Aquatic Chronic = Gevaar voor het aquatisch milieu (chronisch)

Belangrijke literatuurreferenties en informatiebronnen

Informatie van de leverancier.

Herzieningsopmerkingen

Noot: Lijnen in de kantlijn geven significante wijzigingen aan ten opzichte van de vorige revisie.

Datum herziening

2-6-2017

Herziening

07

ZWAVELZUUR 51 - 99%

Datum van vervanging	22-11-2016
VIB nummer	22901
Versienummer	2.001
VIB status	Goedgekeurd.
Handtekening	Lisa Bland
Volledig uitgeschreven gevarenaanduidingen	R35 Veroorzaakt ernstige brandwonden.
Volledige gevarenaanduiding	H318 Veroorzaakt ernstig oogletsel. H314 Veroorzaakt ernstige brandwonden en oogletsel

Verantwoordelijke verdeler:
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België:
Antigifcentrum - Brussel :
TEL: 070/245.245

Nederland:
Nationaal Vergiftigingen Informatie Centrum - Bilthoven :
TEL: 030/274.88.88 (Uitsluitend bestemd om professionele hulpverleners te informeren bij acute vergiftigingen)

RUBRIEK 1. Identificatie van de stof of het mengsel en van de vennootschap/onderneming

1.1. Productidentificatie

Chemische omschrijving	:	Fosforzuur , Orthofosforzuur , oplossing (>=25%).
Aard van het product	:	Zuivere stof in oplossing .
Reach registratienummer	:	01-2119485924-24

1.2. Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geïdentificeerd(e) gebruik(en)	:	Zie tabel op de eerste pagina van de bijlage.
Ontraden gebruik(en)	:	Dit product wordt niet aanbevolen voor industrieel, beroepsmatig of consumentengebruik anders dan vermeld in tabel op de eerste pagina van de bijlage.

1.3. Details betreffende de verstrekker van het veiligheidsinformatieblad

Identificatie van de onderneming	:	Zie hoofding veiligheidsinformatieblad.

1.4. Telefoonnummer voor noodgevallen

Telefoonnummer in geval van nood	:	Zie hoofding veiligheidsinformatieblad.

RUBRIEK 2. Identificatie van de gevaren

2.1. Indeling van de stof of het mengsel

Indeling overeenkomstig Richtlijn 67/548/EEG of 1999/45/EG

Corrosief (C; R34)

Indeling overeenkomstig Verordening (EG) nr. 1272/2008

Corrosief voor metalen - Categorie 1 - Waarschuwing (Met. Corr. 1; H290)
Huidcorrosie - Categorie 1B - Gevaar (Skin Corr. 1B; H314)

2.2. Etiketteringselementen

Etikettering overeenkomstig Verordening (EG) nr. 1272/2008

• Gevaarlijke bestandde(e)l(en)	:	Fosforzuur ... %
• Gevarenpictogram(men)		
• Signaalwoord	:	Gevaar
• Gevarenaanduidingen	:	H290 - Kan bijtend zijn voor metalen. H314 - Veroorzaakt ernstige brandwonden en oogletsel.
• Voorzorgsmaatregelen		
- Preventie	:	P260 - Stof, rook, gas, nevel, damp, spuitnevel niet inademen. P280 - Beschermende handschoenen, beschermende kleding, oog- of gelaatsbescherming dragen.

RUBRIEK 2. Identificatie van de gevaren (vervolg)

- Reactie : P301+P330+P331 - NA INSLIKKEN : De mond spoelen. GEEN braken opwekken. P303+P361+P353 - BIJ CONTACT MET DE HUID (of het haar) : Verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen/afdouchen. P305+P351+P338 - BIJ CONTACT MET DE OGEN : Voorzichtig afspoelen met water gedurende een aantal minuten. Contactlenzen verwijderen, indien mogelijk. Blijven spoelen. P310 - Onmiddellijk een ANTIGIFCENTRUM of een arts raadplegen.
- Opslag : P234 - Uitsluitend in de oorspronkelijke verpakking bewaren.

2.3. Andere gevaren

Fysische/chemische gevaren : De stof ontleedt bij verhitting onder vorming van pyrofosforzuur, metafosforzuur, fosforpentoxide.
Tast metalen aan, waarbij waterstofgas vrijkomt.

Gevaren voor de gezondheid : Een voor de gezondheid gevaarlijke concentratie in de lucht zal door verdamping van deze stof bij ca. 20°C vrij langzaam worden bereikt; bij vernevelen echter veel sneller.

Gevaren voor het milieu : Product veroorzaakt een sterke daling van de pH van water en bodem.
Dit product is geen of bevat geen stof dat een PBT of een zPzB is (overeenkomstig bijlage XIII).

Gevaren voor de veiligheid : De damp mengt zich goed met de lucht.

RUBRIEK 3. Samenstelling en informatie over de bestanddelen

3.1. Stoffen

Naam component(en)		gew. %	CAS nr	EINECS nr	Index nr	Reach nr	INDELING
Fosforzuur ...%	:	>= 25 %	7664-38-2	231-633-2	015-011-00-6	01-2119485924-24	C; R34 --- Met. Corr. 1; H290 Skin Corr. 1B; H314

*

De volledige tekst van de R-zinnen en (EU)H-verklaringen vindt men in rubriek 16.

Nota B (Verordening (EG) nr. 1272/2008) is van toepassing voor het product of voor één of meerdere van zijn bestanddelen.
Nota: SCL van toepassing

RUBRIEK 4. Eerstehulpmaatregelen

4.1. Beschrijving van de eerstehulpmaatregelen

Algemeen : Bij twijfel of bij aanhoudende verschijnselen, steeds een arts raadplegen.
Nooit iets toedienen langs de mond bij een bewusteloos persoon.

Eerstehulpmaatregelen bij

- Inademing : Het slachtoffer in de frisse lucht brengen.
Slachtoffer rustig houden, in halfzittende houding.
Als het slachtoffer niet of onregelmatig ademt, kunstmatige beademing toepassen.
Onmiddellijk een arts raadplegen.
- Contact met de huid : Verontreinigde kledij uittrekken tijdens het spoelen.
Huid onmiddellijk spoelen met veel water en zeep. (minstens 20') (ev. douchen).
Bij (blijvende) irritatie, een arts raadplegen.
- Contact met de ogen : Onmiddellijk grondig en langdurig (minstens 15 min.) spoelen met veel water.
Contactlenzen verwijderen.
Oogarts consulteren.
Oog blijven spoelen of druppelen tijdens vervoer.

RUBRIEK 4. Eerstehulpmaatregelen (vervolg)

- Inslikken : NIET LATEN BRAKEN. De mond spoelen met water.
  Slachtoffer veel water laten drinken.
  Slachtoffer ONMIDDELLIJK naar het ziekenhuis brengen.

4.2. Belangrijkste acute en uitgestelde symptomen en effecten

Zie rubriek 11.

4.3. Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling

Voor specialistisch advies dient de arts contact op te nemen met het NVCI of het Belgisch Antigifcentrum.

RUBRIEK 5. Brandbestrijdingsmaatregelen

5.1. Blusmiddelen

Blusmiddelen

- Geschikte blusmiddelen : Bluspoeder , Alcoholbestendig schuim , Sproeistraalwater .
- Ongeschikte blusmiddelen : Sterke waterstraal .

5.2. Speciale gevaren die door de stof of het mengsel worden veroorzaakt

Speciale blootstellingsrisico's : Bij brand kunnen giftige en bijtende fosforoxide-dampen vrijkomen.

5.3. Advies voor brandweerlieden

Beschermende uitrusting : In de onmiddellijke nabijheid van het vuur een onafhankelijk ademhalingstoestel en beschermende kledij dragen.

Speciale maatregelen : Gebruik (verneveld) water om de naburige verpakkingen en constructies af te koelen. Vermijd dat bluswater in het milieu terechtkomt.
Bluswater neutraliseren met een basisch product.

RUBRIEK 6. Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

6.1. Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures

Persoonlijke voorzorgsmaatregelen : Ontruim onmiddellijk de besmette ruimtes en zorg voor voldoende ventilatie.
Vermijd inademing van de dampen en aanraking met de ogen, de huid en de kledij.
Draag geschikte, persoonlijke veiligheidsuitrusting. (Zie rubriek 8)

6.2. Milieuvoorzorgsmaatregelen

Maatregelen ter bescherming van het milieu : Lekken dichten indien dit zonder risico mogelijk is.
Het gemorste product zoveel mogelijk indijken met inert materiaal.
Verhinder dat het product in open water, riolering of de bodem terechtkomt.
De overheid informeren indien de vloeistof in de riolering of in open water binnendringt.

6.3. Insluitings- en reinigingsmethoden en -materiaal

Reinigingsmethode : Lekvloeistof opvangen in afsluitbare, corrosiebestendige afvalvaten.
Neutraliseer de morsvloeistof met kalk, Natrium- of Calciumcarbonaat of Natriumbicarbonaat.
Overvloedig naspoelen met water.

6.4. Verwijzing naar andere rubrieken

Voor persoonlijke bescherming, zie rubriek 8.
Voor verwijdering van het afvalproduct, zie rubriek 13.

RUBRIEK 7. Hantering en opslag

7.1. Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel

Hantering : STRENGE HYGIENE !
Vermijd inademing van de dampen en aanraking met de ogen, de huid en de kledij.
Draag geschikte, persoonlijke veiligheidsuitrusting. (Zie rubriek 8)
Vermijd opwarming, spatten en dampvorming bij leegmaken, overgieten, verdunnen of oplossen van het product.
Bij verdunnen altijd de zure oplossing bij water voegen, nooit andersom.
Niet eten, drinken, of roken tijdens gebruik.
In de onmiddellijke nabijheid van elke mogelijke bron van blootstelling moeten veiligheidsoogdouches aanwezig zijn.

7.2. Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten

Opslagcondities : Uitsluitend in de oorspronkelijke, goed gesloten verpakking bewaren op een goed geventileerde en donkere plaats.
Alle gevaarlijke producten dienen op een lekbak geplaatst of ingekuipt te worden.
Verwijderd houden van : Oxidatiemiddelen , Basen .

* Geschikt verpakkingsmateriaal : Roestvrij staal , Polypropyleen , Glas .

Ongeschikt verpakkingsmateriaal : Diverse metalen .

7.3. Specifiek eindgebruik

Voor geïdentificeerde gebruiken, zie punt 1.2 en/of blootstellingsscenario's.

RUBRIEK 8. Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

8.1. Controleparameters

Beroepsmatige blootstellingslimieten : Fosforzuur ...% : Grenswaarde (BE) : 1 mg/m³ (2011)
Fosforzuur ...% : Kortetijdswaarde (BE) : 2 mg/m³ (2011)
Fosforzuur ...% : Grenswaarde (TGG 8 u) (NL) : 0,2 ppm (1 mg/m³) (2007)
Fosforzuur ...% : Grenswaarde (TGG 15 min) (NL) : 0,5 ppm (2 mg/m³) (2007)

Biologische grenswaarden : Deze zullen toegevoegd worden van zodra deze beschikbaar zijn.

DNELs : • Fosforzuur ...% : Werknemer, lange-termijn - lokale effecten, inademing : 2,92 mg/m³
• Fosforzuur ...% : Consument, lange-termijn - lokale effecten, inademing : 0,73 mg/m³

PNECs : • Fosforzuur ...% : Niet van toepassing

8.2. Maatregelen ter beheersing van blootstelling

Technische maatregelen : Ventilatie (Indien mogelijk via de vloer) , Plaatselijke afzuiging .

Persoonlijke beschermingsmiddelen

- Inhalatiebescherming : CE-goedgekeurd gasmasker (Filtertype BE/P2).
- Huidbescherming : Geschikte beschermingskledij (Zuurbestendig).

* - Handbescherming : Geschikt materiaal voor veiligheidshandschoenen (EN 374):
De geschiktheid (penetratietijd, materiaaldikte, ...) voor een specifieke werkplek moet worden overlegd met de fabrikant van de beschermhandschoenen.
Butylrubber , PVC .

- Oog-/Gezichtbescherming : Aansluitende veiligheidsbril of gelaatsscherm.

Beheersing van milieublootstelling : Zie rubrieken 6, 7, 12 en 13.

RUBRIEK 9. Fysische en chemische eigenschappen

9.1. Informatie over fysische en chemische basiseigenschappen

Zie technische fiche voor gedetailleerde inlichtingen.

	Fysische toestand (20°C)	: Vloeistof (>75%: Viskeuze vloeistof).
	Uitzicht/Kleur	: Helder , Kleurloos .
	Geur	: Bijna reukloos .
	Geurdrempel	: Geen gegevens beschikbaar.
*	pH-waarde	: 1,2 (85 g/100ml)
*	Smelt-/Vriespunt	: -11,8 tot 21,1 °C (30%-85%)
*	Kookpunt/Kooktraject (1013 hPa)	: 101,8 - 158 °C (30%-85%)
	Vlampunt	: Niet van toepassing.
	Brandgevaar	: Niet van toepassing.
	Verdampingssnelheid	: Niet van toepassing.
	Explosiegrenzen in lucht	: Niet van toepassing.
	Dampspanning (20°C)	: 0,2 - 0,4 kPa
	Relatieve dampdichtheid (lucht=1)	: 3,4
	Relatieve dichtheid van verzadigd damp/lucht mengsel (lucht=1)	: 1,0
	Densiteit (20°C)	: 1,2 - 1,8 kg/l
	Oplosbaarheid in water	: 100 g/100ml
	Log P octanol/water (20°C)	: Niet vastgesteld.
	Zelfontbrandingstemperatuur	: Niet van toepassing.
	Minimale ontstekingsenergie	: Niet van toepassing.
	Ontbindingstemperatuur	: Geen gegevens beschikbaar.
	Viscositeit (20°C)	: ca. 2,0 - 32 mPa.s (30-85%)
	Explosieve eigenschappen	: Geen chemische groep geassocieerd met ontplofbare eigenschappen .
	Oxiderende eigenschappen	: Geen chemische groep geassocieerd met oxiderende eigenschappen .

9.2. Overige informatie

	Soortelijke geleiding	: 4,85 pS/m

RUBRIEK 10. Stabiliteit en reactiviteit

10.1. Reactiviteit

	Reactiviteit	: Reageert heftig met oxidatiemiddelen en basen.

10.2. Chemische stabiliteit

	Stabiliteit	: Stabiel bij normale omstandigheden .

10.3. Mogelijke gevaarlijke reacties

*	Gevaarlijke reacties	: De stof ontleedt bij verhitting onder vorming van pyrofosforzuur, metafosforzuur, fosforpentoxide. Bij contact met metalen stoffen kan ontvlambaar waterstofgas gevormd worden. Contact met : Zuren => Vorming van giftige gassen. (Sulfiden , Cyaniden)

10.4. Te vermijden omstandigheden

	Te vermijden omstandigheden	: Hoge temperaturen , Licht .

10.5. Chemisch op elkaar inwerkende materialen

*	Te vermijden stoffen	: Oxidatiemiddelen , Basen , Diverse metalen , Zuren .

RUBRIEK 10. Stabiliteit en reactiviteit (vervolg)

10.6. Gevaarlijke ontbindingsproducten

* Gevaarlijke ontbindingsproducten : Pyrofosforzuur , Metafosforzuur , Fosforpentoxide , Sulfiden , Cyaniden .

RUBRIEK 11. Toxicologische informatie

11.1. Informatie over toxicologische effecten

Acute toxiciteit

* - Inademing : Inademing kan longontsteking en/of longoedeem veroorzaken, echter uitsluitend na verschijnselen van bijtende effecten op de slijmvliezen van ogen en/of bovenste luchtwegen.
Symptomen: Branderig gevoel , Pijnlijke keel , Hoesten , Kortademigheid , Ademnood .
• Fosforzuur ...% : LC50 (Rat, inademing, 1 u) : 0,85 mg/l

* - Contact met de huid : Huidcontact kan door beschadiging eczeem veroorzaken.
Symptomen: Roodheid , Pijn , Branderig gevoel , Blaren .
• Fosforzuur ...% : LD50 (Konijn, dermaal) : 2740 mg/kg

* - Inslikken : Symptomen: Misselijkheid , Braken , Buikpijn , Diarree .
• Fosforzuur ...% : LD50 (Rat, oraal) : 2600 mg/kg (OESO-Richtlijn 423)

* Huidcorrosie/-irritatie : Veroorzaakt ernstige brandwonden.

* Ernstig oogletsel/oogirritatie : Veroorzaakt ernstig oogletsel.

Gevaar bij inademing : De verschijnselen van longoedeem openbaren zich veelal na enkele uren en worden versterkt door lichamelijke inspanningen.

Sensibilisatie van de luchtwegen/de huid : Niet sensibiliserend .

Carcinogene werking : Niet ingedeeld als carcinogeen (kankerverwekkend) .

Mutagene werking : Niet ingedeeld als mutageen .

Toxische effecten op de reproductie : Niet ingedeeld voor reprotoxiciteit .

Specifieke doelorgaantoxiciteit - eenmalige blootstelling : Bij de mens : Niet ingedeeld voor orgaantoxiciteit .
Bij dieren : Geen effecten gekend.

Specifieke doelorgaantoxiciteit - herhaalde blootstelling : Bij de mens : Niet ingedeeld voor orgaantoxiciteit .
Bij dieren : Geen effecten gekend.

RUBRIEK 12. Ecologische informatie

12.1. Toxiciteit

* Ecotoxiciteit : • Fosforzuur ...% : LC50 (Vis, 96 u) : 3 - 3,25 mg/l (Lepomis macrochirus)
• Fosforzuur ...% : EC50 (Algae, 72 u) : >100 mg/l (Desmodesmus subspicatus) (OESO-Richtlijn 201)
• Fosforzuur ...% : EC50 (Daphnia magna, 48 u) : >100 mg/l (OESO-Richtlijn 202)
• Fosforzuur ...% : NOEC (Algen, 72 u) : 100 mg/l (Desmodesmus subspicatus) (OESO-Richtlijn 201)

12.2. Persistentie en afbreekbaarheid

Persistentie en afbreekbaarheid : • Fosforzuur ...% : Persistentie en afbreekbaarheid : Anorganisch .

12.3. Bioaccumulatie

Bioaccumulatie : • Fosforzuur ...% : Bioaccumulatie : Geen bioaccumulatie .

12.4. Mobiliteit in de bodem

Mobiliteit : • Fosforzuur ...% : Mobiliteit : Zeer goed oplosbaar in water .

12.5. Resultaten van PBT- en zPzB-beoordeling

RUBRIEK 12. Ecologische informatie (vervolg)

Beoordeling : • Fosforzuur ...% : PBT/zPzB : Nee

12.6. Andere schadelijke effecten

WGK-klasse (DE)	: 1 (Zwak watervervuilend product).
Waterbezwaarlijkheid (NL)	: 11
Saneringsinspanning (NL)	: B
Vermogen tot vorming van fotochemische ozon	: Geen gegevens beschikbaar.
Ozonafbrekend vermogen	: Geen .
Hormoonontregelend vermogen	: Geen gegevens beschikbaar.
Broeikaseffect	: Geen .

RUBRIEK 13. Instructies voor verwijdering

13.1. Afvalverwerkingsmethoden

Productverwijdering	: Het product moet vernietigd worden volgens de nationale en lokale wettelijke bepalingen, door een wettelijk erkende verwerver van gevaarlijke afvalproducten.
Europese afvalstoffenlijst	: XXXXXX - Europese afvalstoffencode. Deze code wordt toegewezen op basis van de meest courante toepassingen en kunnen niet representatief zijn voor de verontreinigingen die bij het effectief gebruik van het product ontstaan. De producent van het afval moet zelf zijn proces evalueren en de gepaste afval codering toekennen. Zie Beschikking 2001/118/EG.
Verwijdering van de verpakking	: De gebruikte verpakking is uitsluitend bedoeld voor het verpakken van dit product. Na gebruik de verpakking goed leegmaken en afsluiten. Wanneer het om een retourverpakking gaat, kan de ledige verpakking terug aan de leverancier aangeboden worden.

RUBRIEK 14. Informatie met betrekking tot het vervoer

14.1. VN-nummer

UN-nummer : 1805

14.2. Juiste ladingnaam overeenkomstig de modelreglementen van de VN

ADR-benaming	: UN 1805 Fosforzuur, oplossing, 8, III, (E)
ADN-benaming	: UN 1805 Fosforzuur , oplossing , 8, III
IMDG-benaming	: UN 1805 Phosphoric acid, solution , 8, III
* IATA-benaming	: UN 1805 Fosforzuur , oplossing , 8, III

14.3. Transportgevarenklasse(n)

Klasse : 8

14.4. Verpakkingsgroep

Verpakkingsgroep : III

14.5. Milieugevaren

Milieugevaar	: Nee
Mariene verontreiniging	: Nee

14.6. Bijzondere voorzorgen voor de gebruiker

Gevaarsaanduiding	: 80
Gevaarsymbo(o)l(en)	: 8

RUBRIEK 14. Informatie met betrekking tot het vervoer (vervolg)

EmS-N° : F-A , S-B

14.7. Vervoer in bulk overeenkomstig bijlage II van MARPOL 73/78 en de IBC-code

Type schip : Geen gegevens beschikbaar.

Verontreinigingscategorie : Geen gegevens beschikbaar.

RUBRIEK 15. Regelgeving

15.1. Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

Inventarisaties : Australische inventarisatie (AICS): Opgenomen in inventarisatie.
Canadese inventarisatie (DSL): Opgenomen in inventarisatie.
Chinese inventarisatie (IECS): Opgenomen in inventarisatie.
Japanse inventarisatie (ENCS): Opgenomen in inventarisatie.
Koreaanse inventarisatie (KECI): Opgenomen in inventarisatie.
Filippijnse inventarisatie (PICCS): Opgenomen in inventarisatie.
VS-inventarisatie (TSCA): Opgenomen in inventarisatie.

NFPA-nr. : 3-0-0

Van toepassing zijnde EU Reglementering(en) : Richtlijn 98/24/EG van de Raad van 7 april 1998 betreffende de bescherming van de gezondheid en de veiligheid van werknemers tegen risico's van chemische agentia op het werk
Beschikking 2001/118/EG van de Commissie van 16 januari 2001 tot wijziging van Beschikking 2000/532/EG betreffende de lijst van afvalstoffen
Verordening (EG) nr. 1272/2008 van het Europees Parlement en de Raad van 16 december 2008 betreffende de indeling, etikettering en verpakking van stoffen en mengsels tot wijziging en intrekking van de Richtlijnen 67/548/EEG en 1999/45/EG en tot wijziging van Verordening (EG) nr. 1907/2006
Verordening (EU) nr. 453/2010 van de Commissie van 20 mei 2010 tot wijziging van Verordening (EG) nr. 1907/2006 van het Europees Parlement en de Raad inzake de registratie en beoordeling van en de autorisatie en beperkingen ten aanzien van chemische stoffen (Reach)

15.2. Chemische veiligheidsbeoordeling

Er is een chemische veiligheidsbeoordeling uitgevoerd voor de component(en) van dit product of voor het product zelf.

RUBRIEK 16. Overige informatie

Dit veiligheidsinformatieblad werd opgesteld conform Verordening (EU) nr. 453/2010.
Dit veiligheidsinformatieblad is uitsluitend bedoeld voor industrieel/professioneel gebruik.

* Wijziging t.o.v. de vorige revisie.

* Reden wijziging : Rubriek 3 , Rubriek 7 , Rubriek 8 , Rubriek 9 , Rubriek 11 , Rubriek 12 , Rubriek 14 , Rubriek 16 .

Informatiebronnen : Deze informatie is gebaseerd op de huidige beschikbare gegevens (Producenten van grondstoffen , Chemiekaarten , ...).
Zie ook op het internetadres:
http://apps.echa.europa.eu/registered/registered-sub.aspx#search

R-zin(nen) : R34 - Veroorzaakt brandwonden.

(EU)H-verklaring(en) : H290 - Kan bijtend zijn voor metalen.
H314 - Veroorzaakt ernstige brandwonden en oogletsel.

* Lijst van afkortingen en acroniemen : ADN (Accord européen relatif au transport international des marchandises Dangereuses par voies de Navigation intérieur) : Europees verdrag over het internationaal vervoer van gevaarlijke goederen over de binnenwateren

RUBRIEK 16. Overige informatie (vervolg)

ADR (Accord européen relatif au transport international des marchandises Dangereuses par Route) : Europees verdrag betreffende het internationaal vervoer van gevaarlijke goederen over de weg
DNEL (Derived No Effect Level) : een geschat veilig blootstellingsniveau
EmS (Emergency Schedule) : de eerste code verwijst naar de correspondere brandindeling en de tweede code verwijst naar de corresponderende lekindeling
IATA (International Air Transport Association) : bepalingen betreffende het internationaal vervoer van gevaarlijke stoffen door de lucht
IMDG (International Maritime Dangerous Goods code) : Internationale code voor het vervoer van gevaarlijke stoffen over zee
NFPA (National Fire Protection Association) of gevarendiamant
NVCI : Nationaal Vergiftigingen Informatie Centrum
PBT : persistent, bioaccumulerend en toxisch
PNEC (Predicted No Effect Concentration) : concentratie waaronder blootstelling tot een stof geen effect optreedt
REACH : Registratie, Evaluatie en Autorisatie van Chemicaliën
SCL (Specific Concentration Limits) : specifieke concentratielimieten
TGG (TijdsGewogenGemiddelde) : de gemiddelde blootstelling gedurende een bepaalde periode
WGK (Wassergefahrdungsklasse) : een in Duitsland gebruikelijke classificatie van stoffen, die het milieugevaar voor oppervlaktewater aangeeft
zPzB : zeer persistent en zeer bioaccumulerend

De hier verstrekte informatie is naar ons weten juist en volledig op de datum van uitgifte van dit veiligheidsgegevensblad. De informatie betreft enkel het genoemde product en geeft geen garantie voor de kwaliteit en de volledigheid van de eigenschappen van het product, of voor het geval dat het product samen met andere producten of in enig ander proces gebruikt wordt. Het blijft de verantwoordelijkheid van de gebruiker om zich ervan te verzekeren dat de informatie van toepassing en volledig is m.b.t. het speciale gebruik dat hij van het product maakt.
BRENNTAG wijst iedere verantwoordelijkheid af voor verlies of schade die voortvloeit uit het gebruik van deze gegevens.

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Nº.	Korte titel	Hoofdgebruikersgroep (SU)	Gebruikssector	Productcategorie (PC)	Procescategorie (PROC)	Milieu-emissiecategorie (ERC)	Voorwerpcategorie (AC)	Specificatie
1	Productie van de stof	3	8, 9	NA	1, 2, 3, 4, 8b, 9, 15	1	NA	ES1433
2	Industrieel gebruik	3	8, 9, 10, 15, 16, 17	0, 1, 7, 9a, 9b, 13, 14, 19, 20, 21, 23, 24, 25, 26, 32, 34, 35, 37, 39	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 19, 22, 23	2, 3, 4, 6a, 6b, 6d	NA	ES1460
3	Beroepsmatig gebruik	22	1, 19	9a, 9b, 12, 14, 15, 31, 35, 37, 38	5, 8a, 8b, 9, 10, 11, 13, 15, 19, 25	8a, 8b, 8c, 8e	NA	ES1470
4	Particulier gebruik	21	NA	0, 12, 28, 31, 35, 38, 39	NA	8a, 8b, 8e, 10a, 11a	NA	ES1513

1. Verkorte titel van het blootstellingsscenario 1: Productie van de stof		
Hoofdgebruikersgroepen	SU 3: Industrieel gebruik: Gebruik van stoffen als zodanig of in preparaten in een industriële omgeving	
Eindgebruiksectoren	SU8: Vervaardiging van chemische stoffen op grote schaal (waaronder geraffineerde aardolieproducten) SU9: Vervaardiging van fijnere chemische stoffen	
Procescategorieën	PROC1: Gebruik in een gesloten proces, blootstelling niet waarschijnlijk PROC2: Gebruik in een gesloten, continu proces met incidentele, beheerste blootstelling PROC3: Gebruik in een gesloten batchproces (synthese of formulering) PROC4: Gebruik in een batchproces of ander proces (synthese) met kans op blootstelling PROC8b: Overbrengen van een stof of preparaat (vullen/leeg laten lopen) van/naar vaten/grote containers in gespecialiseerde voorzieningen PROC9: Overbrengen van een stof of preparaat naar kleine containers (gespecialiseerde vullijn, inclusief wegen) PROC15: Gebruik als laboratoriumreagens	
Milieu-emissiecategorieën	ERC1: Vervaardiging van stoffen	
2.1 bijdragescenario dat de milieublootstelling beheerst voor: ERC1		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Waterige oplossingen bevatten meer dan 25%, zelfs tot 100% van de vaste vorm.
Gebruikte hoeveelheid	De dagelijkse en jaarlijkse hoeveelheid/afgifte per site wordt niet als belangrijkste determinant voor milieublootstelling beschouwd	
technische voorwaarden en maatregelen op procesniveau (bron) ter verhindering van vrijkomingen Technische locatievoorwaarden en maatregelen ter reductie en beperking van uitleidingen, luchtemissies en vrijkomingen in de grond Organisatorische maatregelen om vrijkomen van de werkplek te voorkomen/beperken	Lucht	Zuur afgifte is verwaarloosbaar, omwille van zijn lage dampdruk.
	Water	De zuurproductie kan potentieel resulteren in aquatische emissies en de fosfaatconcentratie doen stijgen terwijl het vermindert., De pH van industriële aftakkingen wordt normaal frequent gemeten en kan gemakkelijk worden geneutraliseerd., Het afvalwater zou hergebruikt of gelost moeten worden in het industrieel afvalwater en verder geneutraliseerd indien nodig.
	Bodem	Infiltratie, gedeeltelijke neutralisatie, dispersie, dilutie
	Sediment	Er zal geen absorptie zijn op vaste deeltjes of oppervlakken
	Procedure en/of controletechnologieën worden vereist om emissies en de resulterende blootstelling tijdens het schoonmaken en onderhoud te minimaliseren. Omwille van zijn lage dampdruk en hoge wateroplosbaarheid, vindt men geen zuur in vast afval en bereikt het zuur het luchtcompartiment niet. Door zijn hoge wateroplosbaarheid en lage dampdruk, wordt het zuur hoofdzakelijk gevonden in de bodem en het water. Daar scheidt het zuur progressief terwijl het de pH van het ontvangende	

	compartiment beïnvloedt. Bioakkunmulatie is niet te verwachten.	
Voorwaarden en maatregelen met betrekking tot afvalwaterzuiveringsinstallatie	De pH van het afvalwater dat door de productiesites wordt afgescheiden, zou tussen 6 en 9 moeten liggen.	
Voorwaarden en maatregelen met betrekking tot externe behandeling van afval voor verwerking	Afvalverwerking	Het zuur scheidt en zal wordt geneutraliseerd alvorens WWTP te bereiken.
	Verwijderingsmethoden	De geneutraliseerde vloeistof kan in overeenstemming met regelgevende norm worden verspild.
2.2 Bijdragescenario dat de blootstelling van de werknemer beheerst voor: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC15		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Waterige oplossingen bevatten meer dan 25%, zelfs tot 100% van de vaste vorm.
	Fysische vorm (tijdens gebruik)	vloeibaar, vast
Frequentie en duur van het gebruik	Gebruiksfrequentie	220 dagen/ jaar
	Gebruiksfrequentie	8 uur / dag
technische voorwaarden en maatregelen voor de dispersiecontrole uit de bron ten opzichte van de arbeider	Gebruik gesloten systemen of bedek open containers (b.v. schermen) Transport over buizen, technisch vullen van vaten/ledigen van vaten met automatische systemen (zuigpompen, enz.) Gebruik tang, grijparm met lange handvatten voor manueel gebruik om rechstreeks contact en blootstelling aan spatten te vermijden (geen werken boven het hoofd) Bewaar in koele, droge, propere, goed geventileerde zones, weg van alkaline producten en metalen. Bewaar niet onder rechstreeks zonlicht Stapel de containers niet Bewaar niet bij temperaturen dichtbij het vriespunt. Compatibele materialen: roestvrij staal 316-L; hogedichtheidpolyethyleen ; glas	
Organisatorische maatregelen om vrijkomen, dispersie en blootstelling te voorkomen/beperken	Werknemers geïdentificeerd in het risicogebied moeten opgeleid worden a) om te vermijden dat ze werken zonder ademhalingsbescherming b) om de corrosieve eigenschappen en inhalatie-effecten te bergijpen en c) om de veiligere procedures onderricht door de werkgever na te leven. De werkgever moet ook nagaan of de vereiste PPE beschikbaar is Effectieve controle maatregelen aijn aanwezig om dermale blootstelling te verhinderen.	
Voorwaarden en maatregelen met betrekking tot persoonlijke bescherming, hygiëne en gezondheidsevaluatie	Draag chemisch resistente handschoenen veiligheidsbril met zijbescherming conform EN 166 dragen. Zuurbestendige beschermingskleding dragen. Draag rubberlaarzen. Materiaal: chloropreen handschoenen of equivalent Beschermende kledij en handschoenen zijn verplicht wanneer corrosieve stoffen worden gehanteerd.	

3. Schatting van de blootstelling en aangeven van de bron ervan

Milieu

Kwalitatieve benadering voor het concluderen van veilig gebruik toegepast.

Werknemers

ECETOC TRA

Scenario van het bijdragen	Specifieke omstandigheden	Blootstellingsroute	Niveau van blootstelling	RCR
Relevant voor alle PROCs	vloeibaar	Werknemersblootstelling inademing	0,375mg/m³	0,375
PROC4	vast	Werknemersblootstelling inademing	0,5mg/m³	0,5
PROC1, PROC2, PROC3, PROC8b, PROC9, PROC15	vast	Werknemersblootstelling inademing	0,01mg/m³	0,01

De goede arbeidshygiënepraktijk moet worden nageleefd als er geen orale blootstelling voor werknemers wordt verwacht. Zoals vermeld in de CLP regulering N°1272 /2008 Annex VI tabel 3.1, is de stof corrosief boven de limiet van 25%. Herhaalde dagelijkse dermale blootstelling aan het product is verwaarloosbaar.

4. Aanbevelingen voor gebruikers in de keten (gebruikers downstream) om een inschatting te kunnen maken in hoeverre hij werkt binnen de grenzen van het blootstellingscenario

de richtlijnen baseren op hypothetische bedrijfsvoorwaarden die niet op alle locaties van toepassing hoeven te zijn; om deze reden kan een scalering noodzakelijk zijn om adequate risicomanagementmaatregelen te kunnen vastleggen.
Indien verdere risicomanagementmaatregelen / operationele voorwaarden dienen te worden overgenomen, dienen de gebruikers te waarborgen dat risico's tot een ten minste gelijkwaardig niveau worden beperkt.
Health
de verwachte blootstelling overstijgt de DNEL/DMEL-waarden niet, wanneer de in hoofdstuk 2 vermelde risicomanagementmaatregelen/bedrijfsvoorwaarden in acht worden genomen.
Milieu
Er wordt verwacht dat de geschatte blootstellingen de PNECs niet zullen overschrijden wanneer de geïdentificeerde risicobeheersmaatregelen / operationele omstanigheden worden toegepast, zoals vermeld in sectie 2

Aanvullende adviezen voor goede praktijken ter aanvulling van de REACH Chemische veiligheidbeoordeling

Lokale uitlaatventilatie is geen vereiste maar een goede gewoonte.

1. Verkorte titel van het blootstellingsscenario 2: Industrieel gebruik

Hoofdgebruikersgroepen	SU 3: Industrieel gebruik: Gebruik van stoffen als zodanig of in preparaten in een industriële omgeving
Eindgebruiksectoren	SU8: Vervaardiging van chemische stoffen op grote schaal (waaronder geraffineerde aardolieproducten) SU9: Vervaardiging van fijnere chemische stoffen SU 10: Formuleren [mengen] van preparaten en/ of ompakken (geen legeringen) SU15: Vervaardiging van producten van metaal, exclusief machines en apparaten SU16: Vervaardiging van computers, elektronische en optische producten, elektrische apparatuur SU17: Vervaardiging van machines, apparaten, voertuigen en andere transportmiddelen voor algemeen gebruik
Chemisch product-categorie	PC0: Andere producten: PC1: Kleefmiddelen, afdichtingsmiddelen PC7: Basismetalen en legeringen PC9a: Coatings en verven, verdunners, verfafbijtmiddelen PC9b: Vulmiddelen, kit, gips, modelleerklei PC13: Brandstoffen PC14: Producten voor het behandelen van metalen oppervlakken, waaronder producten voor het galvaniseren PC19: Tussenproducten PC20: Producten zoals pH-regelaars, uitvlokkings-, neerslag- en neutraliseermiddelen PC21: Laboratoriumchemicaliën PC23: Producten voor het looien, verven, afwerken, impregneren en verzorgen van leer PC24: Smeermiddelen, vetten, lossingsmiddelen PC25: Metaalbewerkingsvloeistoffen PC26: Producten voor het kleuren, afwerken en impregneren van papier en karton: inclusief bleekmiddelen en andere verwerkingshulpmiddelen PC32: Polymeerpreparaten en polymeerverbindingen PC34: Producten voor het kleuren, afwerken en impregneren van textiel, inclusief bleekmiddelen en andere verwerkingshulpmiddelen PC35: Was- en reinigingsmiddelen (inclusief op oplosmiddelbasis) PC37: Chemische stoffen voor de waterzuivering PC39: Cosmetica, persoonlijke verzorgingsproducten
Procescategorieën	PROC1: Gebruik in een gesloten proces, blootstelling niet waarschijnlijk PROC2: Gebruik in een gesloten, continu proces met incidentele, beheerste blootstelling PROC3: Gebruik in een gesloten batchproces (synthese of formulering) PROC4: Gebruik in een batchproces of ander proces (synthese) met kans op blootstelling PROC5: Mengen in batchprocessen om preparaten en voorwerpen te formuleren (multistage en/of aanzienlijkcontact) PROC7: Spuiten in een industriële omgeving PROC8a: Overbrengen van een stof of preparaat (vullen/leeg laten lopen) van/naar vaten/grote containers in nietgespecialiseerde voorzieningen PROC8b: Overbrengen van een stof of preparaat (vullen/leeg laten lopen)

	van/naar vaten/grote containers in gespecialiseerde voorzieningen PROC9: Overbrengen van een stof of preparaat naar kleine containers (gespecialiseerde vullijn, inclusief wegen) PROC10: Met roller of kwast aanbrengen PROC13: Behandelen van voorwerpen door onderdompelen of overgieten PROC14: Productie van preparaten of voorwerpen door tabletteren, comprimeren, extruderen en pelletiseren PROC15: Gebruik als laboratoriumreagens PROC19: Handmatig mengen met intiem contact en uitsluitend persoonlijke beschermingsmiddelen beschikbaar PROC22: Mogelijk gesloten bewerking met mineralen/metalen bij hogere temperaturen, industriële omgeving PROC23: Open bewerking en overdracht met mineralen/metalen bij hogere temperaturen	
Milieu-emissiecategorieën	ERC2: Formulering van preparaten ERC3: Formulering in materialen ERC4: Industrieel gebruik van verwerkingshulpmiddelen in processen en producten die geen onderdeel worden van voorwerpen ERC6a: Industrieel gebruik dat resulteert in de vervaardiging van een andere stof (gebruik van tussenproducten) ERC6b: Industrieel gebruik van reactieve verwerkingshulpmiddelen ERC6d: Industrieel gebruik van procesregulatoren voor polymerisatieprocessen bij de productie van harsen, rubbers, polymeren	

2.1 bijdragescenario dat de milieublootstelling beheerst voor: ERC2, ERC3, ERC4, ERC6a, ERC6b, ERC6d

Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Waterige oplossingen bevatten meer dan 25%, zelfs tot 100% van de vaste vorm.
Gebruikte hoeveelheid	De dagelijkse en jaarlijkse hoeveelheid/afgifte per site wordt niet als belangrijkste determinant voor milieublootstelling beschouwd	
technische voorwaarden en maatregelen op procesniveau (bron) ter verhindering van vrijkomingen Technische locatievoorwaarden en maatregelen ter reductie en beperking van uitleidingen, luchtemissies en vrijkomingen in de grond Organisatorische maatregelen om vrijkomen van de werkplek te voorkomen/beperken	Lucht	Zuur afgifte is verwaarloosbaar, omwille van zijn lage dampdruk.
	Water	De zuurproductie kan potentieel resulteren in aquatische emissies en de fosfaatconcentratie doen stijgen terwijl het vermindert., De pH van industriële aftakkingen wordt normaal frequent gemeten en kan gemakkelijk worden geneutraliseerd., Het afvalwater zou hergebruikt of gelost moeten worden in het industrieel afvalwater en verder geneutraliseerd indien nodig.
	Bodem	Infiltratie, gedeeltelijke neutralisatie, dispersie, dilutie
	Sediment	Er zal geen absorptie zijn op vaste deeltjes of oppervlakken
	Procedure en/of controletechnologieën worden vereist om emissies en de resulterende blootstelling tijdens het schoonmaken en onderhoud te minimaliseren.	

	Omwille van zijn lage dampdruk en hoge wateroplosbaarheid, vindt men geen zuur in vast afval en bereikt het zuur het luchtcompartiment niet. Door zijn hoge wateroplosbaarheid en lage dampdruk, wordt het zuur hoofdzakelijk gevonden in de bodem en het water. Daar scheidt het zuur progressief terwijl het de pH van het ontvangende compartiment beïnvloedt. Bioakkunmulatie is niet te verwachten.	
Voorwaarden en maatregelen met betrekking tot afvalwaterzuiveringsinstallatie	De pH van het afvalwater dat door de productiesites wordt afgescheiden, zou tussen 6 en 9 moeten liggen.	
Voorwaarden en maatregelen met betrekking tot externe behandeling van afval voor verwerking	Afvalverwerking	Het zuur scheidt en zal wordt geneutraliseerd alvorens WWTP te bereiken.
	Verwijderingsmethoden	De geneutraliseerde vloeistof kan in overeenstemming met regelgevende norm worden verspild.
2.2 Bijdragescenario dat de blootstelling van de werknemer beheerst voor: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19, PROC22, PROC23		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Waterige oplossingen bevatten meer dan 25%, zelfs tot 100% van de vaste vorm.
	Fysische vorm (tijdens gebruik)	vloeibaar, vast
Frequentie en duur van het gebruik	Gebruiksfrequentie	220 dagen/ jaar
	De maximale duur beschouwd voor dit blootstellingsscenario is een shift van meer dan 4u/dag (worst case veronderstelling)	
	Gebruiksfrequentie	8 uur / dag
technische voorwaarden en maatregelen voor de dispersiecontrole uit de bron ten opzichte van de arbeider	Gebruik gesloten systemen of bedek open containers (b.v. schermen) Transport over buizen, technisch vullen van vaten/ledigen van vaten met automatische systemen (zuigpompen, enz.) Gebruik tang, grijparm met lange handvatten voor manueel gebruik om rechstreeks contact en blootstelling aan spatten te vermijden (geen werken boven het hoofd) Bewaar in koele, droge, propere, goed geventileerde zones, weg van alkaline producten en metalen. Bewaar niet onder rechstreeks zonlicht Stapel de containers niet Bewaar niet bij temperaturen dichtbij het vriespunt. Compatibele materialen: roestvrij staal 316-L; hogedichtheidpolyethyleen ; glas	
Organisatorische maatregelen om vrijkomen, dispersie en blootstelling te voorkomen/beperken	Werknemers geïdentificeerd in het risicogebied moeten opgeleid worden a) om te vermijden dat ze werken zonder ademhalingsbescherming b) om de corrosieve eigenschappen en inhalatie-effecten te bergijpen en c) om de veiligere procedures onderricht door de werkgever na te leven. De werkgever moet ook nagaan of de vereiste PPE beschikbaar is Effectieve controle maatregelen aijn aanwezig om dermale blootstelling te verhinderen.	

Voorwaarden en maatregelen met betrekking tot persoonlijke bescherming, hygiëne en gezondheidsevaluatie	Draag chemisch resistente handschoenen veiligheidsbril met zijbescherming conform EN 166 dragen. Zuurbestendige beschermingskleding dragen. Draag rubberlaarzen. Materiaal: chloropreen handschoenen of equivalent Beschermende kledij en handschoenen zijn verplicht wanneer corrosieve stoffen worden gehanteerd.

3. Schatting van de blootstelling en aangeven van de bron ervan

Milieu

Kwalitatieve benadering voor het concluderen van veilig gebruik toegepast.

Werknemers

ECETOC TRA

Scenario van het bijdragen	Specifieke omstandigheden	Blootstellingsroute	Niveau van blootstelling	RCR
Relevant voor alle PROCs	vloeibaar	Werknemersblootstelling inademing	0,375mg/m³	0,375
PROC1, PROC2, PROC3, PROC8b, PROC9, PROC15	vast	Werknemersblootstelling inademing	0,01mg/m³	0,01
PROC4, PROC5	vast	Werknemersblootstelling inademing	0,5mg/m³	0,5

De goede arbeidshygiënepraktijk moet worden nageleefd als er geen orale blootstelling voor werknemers wordt verwacht. Zoals vermeld in de CLP regulering N°1272 /2008 Annex VI tabel 3.1, is de stof corrosief boven de limiet van 25%. Herhaalde dagelijkse dermale blootstelling aan het product is verwaarloosbaar.

4. Aanbevelingen voor gebruikers in de keten (gebruikers downstream) om een inschatting te kunnen maken in hoeverre hij werkt binnen de grenzen van het blootstellingscenario

de richtlijnen baseren op hypothetische bedrijfsvoorwaarden die niet op alle locaties van toepassing hoeven te zijn; om deze reden kan een scalering noodzakelijk zijn om adequate risicomanagementmaatregelen te kunnen vastleggen.
Indien verdere risicomanagementmaatregelen / operationele voorwaarden dienen te worden overgenomen, dienen de gebruikers te waarborgen dat risico's tot een ten minste gelijkwaardig niveau worden beperkt.
Health
de verwachte blootstelling overstijgt de DNEL/DMEL-waarden niet, wanneer de in hoofdstuk 2 vermelde risicomanagementmaatregelen/bedrijfsvoorwaarden in acht worden genomen.
Milieu
Er wordt verwacht dat de geschatte blootstellingen de PNECs niet zullen overschrijden wanneer de geïdentificeerde risicobeheersmaatregelen / operationele omstanigheden worden toegepast, zoals vermeld in sectie 2

Aanvullende adviezen voor goede praktijken ter aanvulling van de REACH Chemische veiligheidbeoordeling

Lokale uitlaatventilatie is geen vereiste maar een goede gewoonte.

1. Verkorte titel van het blootstellingsscenario 3: Beroepsmatig gebruik		
Hoofdgebruikersgroepen	SU 22: Professioneel gebruik: Publiek domein (administratie, onderwijs, amusement, dienstverlening, ambachtslieden)	
Eindgebruiksectoren	SU1: Landbouw, bosbouw, visserij SU19: Bouwnijverheid	
Chemisch product-categorie	PC9a: Coatings en verven, verdunners, verfafbijtmiddelen PC9b: Vulmiddelen, kit, gips, modelleerklei PC12: Gazon-en tuinpreparaten, inclusief bemestingsmiddelen (- Meststoffen) PC14: Producten voor het behandelen van metalen oppervlakken, waaronder producten voor het galvaniseren PC15: Producten voor het behandelen van niet-metalen oppervlakken PC31: Glansmiddelen en wasmengsels PC35: Was- en reinigingsmiddelen (inclusief op oplosmiddelbasis) PC37: Chemische stoffen voor de waterzuivering PC38: Las- en soldeermiddelen (met vloeicoatings of vloeikernen), vloeimiddelen	
Procescategorieën	PROC5: Mengen in batchprocessen om preparaten en voorwerpen te formuleren (multistage en/of aanzienlijkcontact) PROC8a: Overbrengen van een stof of preparaat (vullen/leeg laten lopen) van/naar vaten/grote containers in nietgespecialiseerde voorzieningen PROC8b: Overbrengen van een stof of preparaat (vullen/leeg laten lopen) van/naar vaten/grote containers in gespecialiseerde voorzieningen PROC9: Overbrengen van een stof of preparaat naar kleine containers (gespecialiseerde vullijn, inclusief wegen) PROC10: Met roller of kwast aanbrengen PROC11: Spuiten buiten industriële omgevingen PROC13: Behandelen van voorwerpen door onderdompelen of overgieten PROC15: Gebruik als laboratoriumreagens PROC19: Handmatig mengen met intiem contact en uitsluitend persoonlijke beschermingsmiddelen beschikbaar PROC25: Overige hittebewerking van metalen	
Milieu-emissiecategorieën	ERC8a: Wijdverbreid gebruik (binnen) van verwerkingshulpmiddelen in open systemen ERC8b: Wijdverbreid gebruik (binnen) van reactieve stoffen in open systemen ERC8c: Wijdverbreid gebruik (binnen) dat leidt tot opname in of op een matrix ERC8e: Wijdverbreid gebruik (buiten) van reactieve stoffen in open systemen	
2.1 bijdragescenario dat de milieublootstelling beheerst voor: ERC8a, ERC8b, ERC8c, ERC8e		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Omvat concentraties van meer dan 25%
Gebruikte hoeveelheid	De dagelijkse en jaarlijkse hoeveelheid/afgifte per site wordt niet als belangrijkste determinant voor milieublootstelling beschouwd	
technische voorwaarden en maatregelen op procesniveau (bron) ter verhindering van vrijkomingen Technische locatievoorwaarden en maatregelen ter reductie en	Lucht	Zuur afgifte is verwaarloosbaar, omwille van zijn lage dampdruk.
	Water	De zuurproductie kan potentieel resulteren in aquatische emissies en de fosfaatconcentratie doen stijgen terwijl het vermindert., De pH van industriële

beperking van uitleidingen, luchtemissies en vrijkomingen in de grond Organisatorische maatregelen om vrijkomen van de werkplek te voorkomen/beperken		aftakkingen wordt normaal frequent gemeten en kan gemakkelijk worden geneutraliseerd., Het is vereist dat de afgiftestroom naar gemeentelijk afvalwater of oppervlaktewater geen significante veranderingen in de pH veroorzaakt., Het afvalwater zou hergebruikt of gelost moeten worden in het industrieel afvalwater en verder geneutraliseerd indien nodig., Verschillende regels zijn van toepassing op professionele gebruikers betreffende de controle van hun effluenten.
	Bodem	Infiltratie, gedeeltelijke neutralisatie, dispersie, dilutie, Bij afgifte aan de grond voor meststofgebruik, zal de pH genutraliseerd worden door het medium alvorens het grondwater te bereiken.
	Sediment	Er zal geen absorptie zijn op vaste deeltjes of oppervlakken
	Procedure en/of controletechnologieën worden vereist om emissies en de resulterende blootstelling tijdens het schoonmaken en onderhoud te minimaliseren. Omwille van zijn lage dampdruk en hoge wateroplosbaarheid, vindt men geen zuur in vast afval en bereikt het zuur het luchtcompartiment niet. Door zijn hoge wateroplosbaarheid en lage dampdruk, wordt het zuur hoofdzakelijk gevonden in de bodem en het water. Daar scheidt het zuur progressief terwijl het de pH van het ontvangende compartiment beïnvloedt. Bioakkunmulatie is niet te verwachten.	
Voorwaarden en maatregelen met betrekking tot externe behandeling van afval voor verwerking	Afvalverwerking	Het zuur scheidt en zal wordt geneutraliseerd alvorens WWTP te bereiken.
	Verwijderingsmethoden	De geneutraliseerde vloeistof kan in overeenstemming met regelgevende norm worden verspild., Het residu van de containers of de gebruikte container zelf zou overeenkomstig lokale vereisten moeten worden geordend.
2.2 Bijdragescenario dat de blootstelling van de werknemer beheerst voor: PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19, PROC25		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Omvat concentraties van meer dan 25%
	Fysische vorm (tijdens gebruik)	vloeibaar, vast
Gebruikte hoeveelheid	Deze stof wordt gebruikt tijdens de productiefase van diverse reinigingsmiddelen, hoewel vaak de hoeveelheid in de eindproducten beperkt is wegens zijn reactiviteit., De gebruikte hoeveelheid per werknemer varieert van activiteit tot activiteit.	
Frequentie en duur van het	Gebruiksfrequentie	220 dagen/ jaar

gebruik	De maximale duur beschouwd voor dit blootstellingsscenario is een shift van meer dan 4u/dag (worst case veronderstelling)	
	Gebruiksfrequentie	8 uur / dag
Organisatorische maatregelen om vrijkomen, dispersie en blootstelling te voorkomen/beperken	Omdat de stof corrosief is, zouden de risicobeheersmaatregelen voor volksgezondheid zich moeten concentreren op de preventie van direct contact met de stof.	
Voorwaarden en maatregelen met betrekking tot persoonlijke bescherming, hygiëne en gezondheidsevaluatie	Gebruik geschikte oogbescherming en handschoenen. Draag geschikte overall om blootstelling van de huid te voorkomen.	

3. Schatting van de blootstelling en aangeven van de bron ervan

Milieu

Kwalitatieve benadering voor het concluderen van veilig gebruik toegepast.

Werknemers

ECETOC TRA

Scenario van het bijdragen	Specifieke omstandigheden	Blootstellingsroute	Niveau van blootstelling	RCR
Relevant voor alle PROCs	vloeibaar	Werknemersblootstelling inademing	0,375mg/m³	0,375

De goede arbeidshygiënepraktijk moet worden nageleefd als er geen orale blootstelling voor werknemers wordt verwacht. Zoals vermeld in de CLP regulering N°1272 /2008 Annex VI tabel 3.1, is de stof corrosief boven de limiet van 25%. Herhaalde dagelijkse dermale blootstelling aan het product is verwaarloosbaar.

4. Aanbevelingen voor gebruikers in de keten (gebruikers downstream) om een inschatting te kunnen maken in hoeverre hij werkt binnen de grenzen van het blootstellingscenario

de richtlijnen baseren op hypothetische bedrijfsvoorwaarden die niet op alle locaties van toepassing hoeven te zijn; om deze reden kan een scalering noodzakelijk zijn om adequate risicomanagementmaatregelen te kunnen vastleggen.
Indien verdere risicomanagementmaatregelen / operationele voorwaarden dienen te worden overgenomen, dienen de gebruikers te waarborgen dat risico's tot een ten minste gelijkwaardig niveau worden beperkt.
Health
de verwachte blootstelling overstijgt de DNEL/DMEL-waarden niet, wanneer de in hoofdstuk 2 vermelde risicomanagementmaatregelen/bedrijfsvoorwaarden in acht worden genomen.
Milieu
Er wordt verwacht dat de geschatte blootstellingen de PNECs niet zullen overschrijden wanneer de geïdentificeerde risicobeheersmaatregelen / operationele omstanigheden worden toegepast, zoals vermeld in sectie 2

Aanvullende adviezen voor goede praktijken ter aanvulling van de REACH Chemische veiligheidbeoordeling

Lokale uitlaatventilatie is geen vereiste maar een goede gewoonte.
Aangezien geautomatiseerde, gesloten systemen en afzuigventilatie minderhaalbaar zijn om professionele

instellingen te implementeren, zouden product verwante ontwerpmaatregelen moeten genomen worden (bijv. lage concentratie) evenals goede praktijken die direct oog- en huidcontact met de stof en vorming van aerosolen verhinderen en de spatten belangrijker zijn samen met de persoonlijke beschermingsmaatregelen.

1. Verkorte titel van het blootstellingsscenario 4: Particulier gebruik		
Hoofdgebruikersgroepen	SU 21: Consumentengebruik: Particuliere huishoudens (= algemeen publiek = consumenten)	
Chemisch product-categorie	PC0: Andere producten: PC12: Gazon-en tuinpreparaten, inclusief bemestingsmiddelen (- Meststoffen) PC28: Parfums, geurmiddelen PC31: Glansmiddelen en wasmengsels PC35: Was- en reinigingsmiddelen (inclusief op oplosmiddelbasis) PC38: Las- en soldeermiddelen (met vloeicoatings of vloeikernen), vloeimiddelen PC39: Cosmetica, persoonlijke verzorgingsproducten	
Milieu-emissiecategorieën	ERC8a: Wijdverbreid gebruik (binnen) van verwerkingshulpmiddelen in open systemen ERC8b: Wijdverbreid gebruik (binnen) van reactieve stoffen in open systemen ERC8e: Wijdverbreid gebruik (buiten) van reactieve stoffen in open systemen ERC10a: Wijdverbreid gebruik (buiten) van voorwerpen met een lange levensduur en materialen met lage emissie ERC11a: Wijdverbreid gebruik (binnen) van voorwerpen met een lange levensduur en materialen met lage emissie	
2.1 bijdragescenario dat de milieublootstelling beheerst voor: ERC8a, ERC8b, ERC8e, ERC10a, ERC11a		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Omvat stofaandelen in het product tot 25 %.
Voorwaarden en maatregelen met betrekking tot afvalwaterzuiveringsinstallatie	Type afvalwaterreinigingsinstallatie	Gemeentelijke waterreinigingsinstallatie, Chemisch/biologisch
Voorwaarden en maatregelen met betrekking tot externe behandeling van afval voor verwerking	Afvalverwerking	Batterijen zouden zo veel mogelijk moeten worden gerecycleerd (bv. door ze naar een publieke recycleerbare plaats terug te brengen)
	Verwijderingsmethoden	Vervuild verpakkingsmateriaal zal verwaarlossbare hoeveelheden stof bevatten., Het zal als huishoudelijk/gemeentelijk afval afgevoerd worden., De stof wordt niet verwacht een significant pH effect te veroorzaken aan het milieu wanneer het verast of gestort wordt.
2.2 Bijdragescenario dat de blootstelling van de gebruiker beheerst voor: PC0, PC12, PC28, PC31, PC35, PC38, PC39		
Productkarakteristieken	Concentratie van de stof in het mengsel/artikel	Heeft betrekking op het percentage van de stof in het product tot een gehalte van 25 %.
	Fysische vorm (tijdens gebruik)	vloeibaar
Gebruikte hoeveelheid	Hoeveelheid gebruikt per gebeurtenis	0,110 kg
	De stof wordt gebruikt als een elektrolyt in batterijen., Verder zullen gebruikte	

	hoeveelheden in deze mengsels reageren met andere ingrediënten in zuur-base reacties en zullen dus enkel residu's van de stof in het definitieve product blijven zitten.	
Frequentie en duur van het gebruik	Gebruiksfrequentie	1 Keren per dag
	Gebruiksfrequentie	20 minuten/keer
	Gebruiksfrequentie	360 dagen/ jaar
Omstandigheden en maatregelen in verband met de consumentenbescherming (bijvoorbeeld aanbevelingen over gedrag, persoonlijke bescherming en hygiëne)	Consumentenmaatregelen	Men vereist het gebruik van resistente etikettering-verpakking om de zelf-schade en verlies van de etiketintegriteit te vermijden onder normaal gebruik en opslag van het product. Het gebrek aan kwaliteit van de verpakking veroorzaakt het fysieke verlies van informatie over gevaren en gebruiksinstructies.
	Consumentenmaatregelen	Buiten bereik van kinderen bewaren.
	Consumentenmaatregelen	Draag geschikte handschoenen.
	Aanbevolen:	
	Consumentenmaatregelen	Als spatten kunnen voorkomen:

3. Schatting van de blootstelling en aangeven van de bron ervan

Milieu

Er is geen afgifte naar het milieu aangezien batterijen verzegelde artikelen zijn met een lange levensduur. Consumenten gebruiken hebben betrekking op reeds verdunde producten die verder snel in het riool zullen geneutraliseerd worden, goed alvorens een WWTP of een oppervlaktewater te bereiken. Kwalitatieve benadering voor het concluderen van veilig gebruik toegepast.

Consumenten

ConsExpo 4.1

Scenario van het bijdragen	Specifieke omstandigheden	Blootstellingsroute	Niveau van blootstelling	RCR
Relevant voor alle PC's	---	Consumentenblootstelling inademing	0,442mg/m³	0,6

Aangezien batterijen verzegelde artikelen zijn en aangezien de stof betrokken bij hun onderhoud niet bestemd zijn voor rechtstreekse afgifteblootstelling naar en emissie van, zou de stof in deze levensduurcycli te verwaarlozen zijn en wordt daarom een blootstellingsbeoordeling niet als beschouwd geacht. Hoewel toevallige blootstelling aan de stof bij een concentratie hoger dan 10% normaal uitgesloten wordt van een EU chemische veiligheidsbeoordeling en hoewel toevallige blootstelling in de huidige beoordeling niet beschouwd wordt, zijn verscheidene risicobeheersmaatregelen voor de consument ingesloten in het dossier. Er is geen afgifte naar het milieu aangezien batterijen verzegelde artikelen zijn met een lange levensduur.

4. Aanbevelingen voor gebruikers in de keten (gebruikers downstream) om een inschatting te kunnen maken in hoeverre hij werkt binnen de grenzen van het blootstellingscenario

de richtlijnen baseren op hypothetische bedrijfsvoorwaarden die niet op alle locaties van toepassing hoeven te zijn; om deze reden kan een scalering noodzakelijk zijn om adequate risicomanagementmaatregelen te kunnen vastleggen.
Indien verdere risicomanagementmaatregelen / operationele voorwaarden dienen te worden overgenomen, dienen de gebruikers te waarborgen dat risico's tot een ten minste gelijkwaardig niveau worden beperkt.
Health
de verwachte blootstelling overstijgt de DNEL/DMEL-waarden niet, wanneer de in hoofdstuk 2 vermelde risicomanagementmaatregelen/bedrijfsvoorwaarden in acht worden genomen.
Milieu
Er wordt verwacht dat de geschatte blootstellingen de PNECs niet zullen overschrijden wanneer de geïdentificeerde risicobeheersmaatregelen / operationele omstanigheden worden toegepast, zoals vermeld in sectie 2
Voor afstemming zie: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Alleen goed opgeleide personen zullen gebruik maken van de scaling-methoden terwijl gecontroleerd wordt of de OC en RMM binnen de grenzen valt vastgelegd door het ES.

BEDRIJFSINFORMATIE DISTRIBUTEUR		
naam	**BRENNTAG N.V.**	**BRENNTAG Nederland B.V.**
adres	Nijverheidslaan 38 8540 Deerlijk	Donker Duyvisweg 44 3316 BM Dordrecht
land	België	Nederland
telefoonnummer	+32 (0)56 77 69 44	+31 (0)78 65 44 944
faxnummer	+32 (0)56 77 57 11	+31 (0)78 65 44 919
website	www.brenntag.be	www.brenntag.nl
e-mail	info@brenntag.be	info@brenntag.nl
activiteiten	Distributie en export van chemicaliën en grondstoffen	
BTW-nummer	BE0405317567	NL001375945B01
terugroepingsprocedure	Ja	
noodnumer (24/365)	+32 (0)56 77 69 44	+31 (0)78 6544 944
KWALITEITSSYSTEMEN		
ISO 9001	Ja	Ja
ISO 14001	Ja	Ja
ISO 22000	Ja	Ja
FSSC 22000	Ja	Ja
GMP+ -feed	Ja	Ja
OHSAS18001	-	Ja
ESAD	Ja	Ja
andere	-	AEO

Material Safety Data Sheet

Revision Issued: 7/23/2008	Supercedes: 12/31/2006	First Issued: 5/31/1978

Section I – Product and Company Identification

Product Name: **Urea, liquor**

PotashCorp MSDS No.: 36
ERG No.: N/A

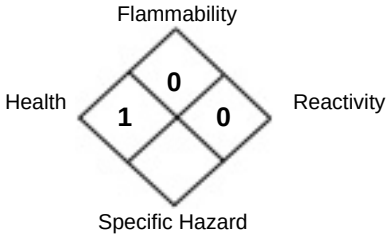
1101 Skokie Blvd., Northbrook, IL 60062
Phone (800) 241-6908 / (847) 849-4200

Suite 500, 122 – 1st Avenue South
Saskatoon, Saskatchewan Canada S7K7G3
Phone (800) 667-0403 from Canada
(800) 667-3930 from USA

Emergencies (800) 424-9300 (CHEMTREC)

Web Site www.potashcorp.com

Health Emergencies, Contact Your Local Poison Center



NFPA Code

Common Name: Aqueous solutions of Urea (30%-70%)	**Formula:** $CO(NH_2)_2$	**Synonym:** Urea Solution	**Uses:** Industrial, Animal Feed

Section II – Composition / Information On Ingredients

Chemical Name	CAS No.	Exposure Limits								% by Weight
		OSHA PEL		TLV – TWA		STEL		CEIL		
		mg/m³	ppm	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm	
Urea	57-13-6	none established								31 - 70
Alkalinity (as ammonia)										0.02 - 0.7
Biuret										0.5 - 1.0
Total Nitrogen										23.6 - 36
Carbonate (as CO_2)										0.2 - 0.3
Sulfur										Nil

*Foliar - pH 7-8, Density 9.7 lbs/gallon @ 75ºF, Specific Gravity 1.16 @ 75º/60ºF prepared by neutralizing alkalinity in Urea 50 using Sulfuric Acid.

Section III – Hazard Identification

Potential Acute Health Effects:	Skin: Repeated or prolonged contact may cause reddening, itching and inflammation. Ingestion: A single dose of 100 grams has reportedly caused mild symptoms of Central Nervous System depression e. g. drowsiness and slow reflexes.		
Eyes and Skin:	Eyes: Liquid contact may irritate mildly. Mist contact may also irritate mildly. Contact with heated material may cause thermal burns. Skin: Liquid contact may irritate mildy with repeated or prolonged exposure.		
Inhalation:	In the unlikely event that mist is formed, respiratory tract irritation may occur.		
Ingestion:	A single dose of 100 grams has reportedly caused mild symptoms of central nervous system depression (e.g. drowsiness, slow reflexes, and slurred speech). May cause gastroinestional disturbances (symptoms may include irritation, nausea, vomiting and diarrhea).		
Potential Chronic Health Effects:	No potential chronic effects known. Urea is a naturally occurring chemical in the body. It is an end product of protein metabolism and is excreted in the urine.		
CARCINOGENICITY LISTS	**IARC Monograph:** No	**NTP:** No	**OSHA:** No

Section IV – First Aid Measures

Eyes:	Promptly flush with water, continuing for 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. If irritation persists, consult a physician immediately.
Skin:	Wash area of contact thoroughly with soap and water. For contact with molten product do not remove clothing. Flush skin immediately with cold water. Launder clothing before reuse.
Ingestion:	Do not induce vomiting. Keep affected person warm and treat for shock. Get medical attention. A single dose of 100 grams has reportedly caused mild symptoms of Central Nervous System depression (drowsiness, etc.).
Inhalation:	Remove affected person from source of exposure. If not breathing, ensure open airway and initiate CPR. If breathing is difficult, administer oxygen; if available get medical attention.

Section V – Fire Fighting Measures

Flash Point:	Not Applicable	**Autoignition Temperature:**	Not Applicable
Lower Explosive Limit:	Not Applicable	**Upper Explosive Limit:**	Not Applicable
Unusual Fire and Explosion Hazards:	See Hazardous Decomposition Products, Section X.		
Extinguishing Media:	Water recommended, all standard agents are acceptable.		
Special Firefighting Procedures and Equipment:	Wear sufficient self-contained breathing apparatus approved by NIOSH. Use water spray to keep containers cool.		

Section VI – Accidental Release Measures

Small Spill:	Promptly absorb with commercial or other absorbent and shovel into container,(e. g. metal.)
Large Spill:	Dike up with same absorbent and mop up or pump into same container. If some solid crystallizes due to cooling, wash with water. Cleanup should not be delayed.
Release Notes:	If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or road spill notify: CHEMTREC IN USA at 800-424-9300; CANUTEC in Canada at 613-996-6666 CHEMTREC in other countries at (International code)+1-703-527-3887.
Comments:	See Section XIII for disposal information and Section XV for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel.

Section VII – Handling and Storage

Ventilation:	Provide local or general ventilation to keep below nuisance dust limit of 15mg/m^3.
Handling:	Avoid contact with eyes. Avoid prolonged or repeated contact with skin or clothing. Avoid breathing mist.
Storage:	Protect from physical damage. This material is vented in storage. Avoid containers, piping or fittings made of brass, bronze, or other copper-bearing alloys, or galvanized metal.

Section VIII – Exposure Controls/ Personal Protection

Engineering Controls:	Ordinarily, natural ventilation is adequate. If misting, mechanical (general) ventilation is generally adequate.
Personal Protection:	
Eye Protection:	Wear chemical safety goggles or face shield. Do NOT wear contact lenses.
Protective Clothing:	Impervious gloves and full work clothing.
Respiratory Protection:	Not generally required. If misty condition prevails, wear a NIOSH approved mist respirator.
Other Protective Clothing or Equipment:	Not generally required

Section IX – Physical and Chemical Properties

Appearance/Color/Odor:	This material at normal conditions is colorless liquid; mildly ammoniacal odor.	**Boiling Point (50% urea solution):**	106ºC
Melting Point/Range:	Salt Out Temperature: 50% 63ºF 17ºC 65% 115ºF 46ºC 70% 135ºF 57ºC	**Boiling Point Range:**	Not Applicable
Solubility in Water:	100%	**Vapor Pressure (mmHg):**	220 mmHg at 20^{o}C
Specific Gravity:	50%: 1.14 @ 75^{O}F 65%: 1.165 @ 135^{O}F 70%: 1.175 @ 155^{O}F	**Molecular Weight:**	60.07 (100% Urea)
Vapor Density:	Not Applicable	**% Volatiles:**	Not Applicable
Bulk Density:	9.2 - 9.7 @ 100ºF (40-70%) 9.5 @ 75ºF (Foliar 50) 9.7 @ 115ºF (65% Agricultural) 9.7 @ 145ºF (70% Industrial)	**Evaporation Rate:**	Not Applicable
pH:	Typically 10.0	**Freezing Point:**	See Melting Point
Viscosity:	Not Applicable	**Density:**	See Specific Gravity

Section X – Stability and Reactivity

Stability:	This product is stable under normal ambient conditions of temperature and pressure.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	The evaporation residue should not be heated above its melting point, 133ºC: Decomposes to hazardous products.
Materials to Avoid (Incompatibles):	Avoid contact with strong oxidizers (e.g. chlorine, peroxide, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fire or explosions or release toxic fumes.
Hazardous Decomposition Products:	If the evaporation residue is heated to the melting point or above, Ammonia and Carbon Dioxide are formed. Some Ammonia and CO_2 are given off on heating the aqueous product. Under some conditions of pressure and temperature, some Ammonium Cyanate has also been reported.

Section XI – Toxicological Information

Significant Routes of Exposure:	Eyes, Digestive Tract, Respiratory Tract, Skin	
Toxicity to Animals:	**Acute Oral Toxicity:**	(rat): LD_{50} = 14,300 – 15,000 mg/kg; (mouse) 11,500 – 13,000 mg/kg.; (cattle): 510 mg/kg.
	Acute Inhalation Toxicity:	No data available.
	Acute Toxicity: Other Routes:	No data available
	Acute Dermal Toxicity:	No data available
	Repeated Dose Toxicity:	(rat) 24 weeks; dermal - NOAEL = 40% in ointment
	Eye & Skin Irritation/Corrosion:	Skin Irritation/Corrosion: Mouse – Not irritating (10% solution) Eye Irritation/Corrosion: Rabbit – Not irritating (50% solution)
Special Remarks on Toxicity to Animals:	Not found to be toxic by oral exposure as defined by OSHA. Based on toxicity data for another compound (i.e., ammonium nitrate), not expected to be toxic by dermal and inhalation exposure as defined by OSHA.	
	Developmental Toxicity/Teratogenicity:	Not teratogenic.
	Bacterial Genetic Toxicity In-Vitro: Gene Mutation:	(*Salmonella typhimurium*) – Bacterial reverse mutation assay-Negative; Chinese Hamster -- Chromosomal aberration test – Positive (very high dose); Mouse – Mouse lymphone TK locus assay - Positive (very high dose).
	Non-Bacterial Genetic Toxicity In-Vitro: Chromosomal Aberration:	Mouse – Bone marrow cytogenetic test – Positive (extremely high dose).
	Toxicity to Reproduction:	No toxic effects on mouse gonads up to 6,750-mg/kg day. No toxic effects on rat gonads up to 2,250-mg/kg day.
	Carcinogenicity:	No data available
Other Effects on Humans:	May cause gastrointestinal disturbances (symptoms may include irritation, nausea, vomiting and diarrhea).	
Special Remarks on Chronic Effects on Humans:	No chronic effects known.	
Special Remarks on Other Effects on Humans:	May be irritating at > 10% concentration; not a skin sensitizer. Despite extensive medical use, no significant side effects on humans have been noted.	

Section XII – Ecological Information

Ecotoxicity	**EPA Ecological Toxicity rating :**	
	Acute Toxicity to Fish:	96 -h : (*Barillius barna*) LC_{50} > 9,100 mg/L.
	Chronic Toxicity to Fish:	No data available
	Acute Toxicity to Aquatic Invertebrates:	(*Daphnia magna*): 24 - h EC_{50} = > 10,000 mg/L .
	Chronic Toxicity to Aquatic Invertebrates:	No data available
	Acute Toxicity to Aquatic Plants:	(*Scenadesmus quadricauda*) 192-hr cell multiplication inhibition test-TT>10,000 mg/L. T
	Toxicity to Other Non-Mammalian Terrestrial Species:	(Pigeon)-Subcutaneous-LD_{LO}=16,000 mg/kg.
	Toxicity to Terrestrial Plants:	No data available
Environmental Fate:	**Stability in Water:**	$T_{1/2}$ > 1 year. Since Urea is a fertilizer, it may promote eutrophication in waterways. Non-toxic to aquatic organisms as defined by USEPA.
	Stability in Soil:	No data available
	Transport and Distribution:	Transport: 0.16% in air; 99.84% in water
Toxicity:	No known toxicity	
Degradation Products:	**Biodegradation:**	Ultimately biodegradable.
	Photodegradation:	No data available

Section XIII – Disposal Considerations

Product Disposal:	Disposal of Urea may be subject to federal, state or local regulations.
General Comments:	Users of this product should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material.

Section XIV – Transportation Information

	USDOT	**TDG - Canada**
Proper Shipping Name:	Not regulated	Not regulated
Hazard Class:		
Identification Number:		
Packing Group (Technical Name):		
Labeling / Placarding:		
Authorized Packaging:		
Notes:		
European Transportation:		

Section XV – Regulatory Information

UNITED STATES: SARA Hazard Category:	This product has been reviewed according to the EPA Hazard Categories promulgated under Section 311 and 312 of the Superfund Amendment and reauthorization Act of 1986 (SARA title III) and is considered, under applicable definitions, to meet the following categories:										
	Fire:	No	**Pressure Generating:**	No	**Reactivity:**	No	**Acute:**	Yes	**Chronic:**	No	
	40 CFR Part 355 - Extremely Hazardous Substances:						None				
	40 CFR Part 370 - Hazardous Chemical Reporting:						Applicable				
	All intentional ingredients listed on the TSCA inventory.										
SARA Title III Information:	This product contains the following substances subject of the reporting requirements of Title III (EPCRA) of the Superfund amendments and Reauthorization Act of 1986 and 40 CFR Part 372:										

Chemical	CAS NO.	Percent by Weight	CERCLA RQ (lbs)*	SARA (1986) Reporting		
				311	312	313
Urea	57-13-6	97.5 - 99.7	NA	Yes	Yes	NA

CERCLA/Superfund, 40 CFR Parts 117, 302:	If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National response Center, Washington D.C. (1-800-424-8802) is required.	
CANADA:	**WHMIS Hazard Symbol and Classification:**	This product is not WHMIS controlled
	Ingredient Disclosure List:	This product does contain ingredient(s) on this list.
	Environmental Protection:	All intentional ingredients are listed on the DSL (Domestic Substance List).
EINECS#:	(Urea) 200-315-5	
California: Prop 65:	This is not a chemical known to cause cancer, nor is it listed.	

Section XVI – Other Information

NFPA Hazard Ratings:	**Health:** 1	**Fire:** 0	**Reactivity:**	**Special Hazards:**
	0 = Insignificant	**1 = Slight**	**2 = Moderate**	**3 = High** **4 = Extreme**
COMMENTS:	This product is TSE/BSE (Transmissible Spongiform Encephalopathy/Bovine Spongiform Encephalopathy) free. There are no animal constiuents used in the manufacture of Urea, liquor for PCS Sales (USA) Inc. Our product is created through a chemical process.			
Section(s) changed since last revision:	II			

Safety Data Sheet (SDS)		
Paques bv		
EC 453/2010	Date: 28-02-2005	Revision: 2.6.2015
Name: Biopaq Micromix		

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. PRODUCT IDENTIFIER

Product form : Mixture
Trade name : Biopaq Micromix

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

1.2.1. Relevant identified uses

Main use category : Industrial use
Professional use
Use of the substance/preparation : Waste water treatment
Function or use category : Water treatment chemicals

1.2.2. Uses advised against

No additional information available

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Name : Paques bv
Address : T. de Boerstraat 24
Postbus 52
8560 AB BALK
Telephone : +31 (0) 514-608 500
Facsimile : +31 (0) 514-603 342
E-mail : services@paques.nl
Telephone in case of emergency :+31 (0) 620 705 748

1.4. EMERGENCY TELEPHONE NUMBER

Country	Official advisory body	Address	Emergency number
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	0870 243 2241

2. HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

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

Met. Corr. 1 : H290
Skin Irrit. 2 : H315
Eye Irrit. 2 : H319
Skin Sens. 1 : H317
Carc. 1B : H350
Aquatic Chronic 3 : H412

Full text of H-phrases: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. LABEL ELEMENTS

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

Hazard pictograms (CLP) :

GHS05 GHS07 GHS08

CLP Signal word : Danger

Hazardous ingredients : Cobalt(II)sulfate, Iron(III) chloride, Nickel(II) sulfate

Hazard statements (CLP) : H290 - May be corrosive to metals
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H350 - May cause cancer (inhalation)
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) : P202 - Do not handle until all safety precautions have been read and understood
P261 - Avoid breathing vapours, mist, spray
P280 - Wear protective gloves, protective clothing, eye protection
P302+P352 - IF ON SKIN: Wash with plenty of soap and 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
P308+P313 - IF exposed or concerned: Get medical advice/attention

2.3. OTHER HAZARDS

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

Not applicable

3.2. MIXTURES

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Iron(III) chloride 40%	(CAS No.) 7705-08-0 (EC no) 231-729-4 (REACH-no) 01-2119497998-05	<= 10	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314
Sulphuric acid 96%	(CAS No.) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) 01-2119458838-20	<= 3	Met. Corr. 1, H290 Skin Corr. 1A, H314
Copper(II) sulfate, pentahydrate	(CAS No.) 7758-99-8 (EC no) 231-847-6 (EC index no) 029-004-00-0 (REACH-no) 01-2119520566-40	<= 0,6	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Skin Irrit. 2, H315 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
manganese(II)sulfate, monohydrate	(CAS No.) 10034-96-5 (EC no) 232-089-9 (EC index no) 025-003-00-4 (REACH-no) 01-2119456624-35	<= 0,3	Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Chronic 2, H411
Nickel(II) sulfate	(CAS No.) 7786-81-4 (EC no) 232-104-9 (EC index no) 028-009-00-5 (REACH-no) 01-2119439361-44	<= 0,2	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1A, H350i Repr. 1B, H360D STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Zinc sulfate, monohydrate	(CAS No.) 7446-19-7 (EC no) 231-793-3 (EC index no) 030-006-00-9 (REACH-no) 01-2119474684-27	<= 0,2	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Cobalt(II)sulfate substance listed as REACH Candidate (Cobalt(II) sulphate)	(CAS No.) 10124-43-3 (EC no) 233-334-2 (EC index no) 027-005-00-0 (REACH-no) 01-02119517426-41	<= 0,1	Acute Tox. 4 (Oral), H302 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350i Repr. 1B, H360F Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10)

Full text of H- and EUH-phrases: see section 16

4. FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

First-aid measures general : Check the vital functions.
Unconscious: maintain adequate airway and respiration.
Respiratory arrest: artificial respiration or oxygen.
Cardiac arrest: perform resuscitation.
Victim conscious with laboured breathing: half-seated.
Victim in shock: on back; legs slightly raised.
Vomiting: prevent asphyxia/aspiration pneumonia.
Prevent cooling by covering the victim (no warming up).
Keep watching the victim.
Give psychological aid.
Keep the victim calm, avoid physical strain.
Depending on the victim's condition: doctor/hospital

First-aid measures after inhalation : Remove the victim into fresh air. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Unconscious: maintain adequate airway and respiration.
Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents.
Take victim to a doctor if irritation persists.

First-aid measures after eye contact : Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing.
Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink.
Do not induce vomiting. Consult a doctor/medical service if you feel unwell.
Ingestion of large quantities: immediately to hospital.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Symptoms/injuries after inhalation : Dry/sore throat.Coughing

Symptoms/injuries after skin contact : Slight irritation

Symptoms/injuries after eye contact : Redness of the eye tissue

Symptoms/injuries after ingestion : Nausea. Vomiting. Cramps/uncontrolled muscular contractions

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Follow the advices in chapter 4.1. Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media : Extinguishing media for surrounding fires : All extinguishing media allowed.
Use fire extinguishing methods suitable to surrounding conditions.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire hazard : Direct fire hazard: Non combustible

Explosion hazard : No direct explosion hazard

Reactivity : On burning: release of toxic and corrosive gases/vapours (sulphur oxides, cobalt oxides, nickel oxides).
On heating: release of toxic and corrosive gases/vapours (hydrogen chloride).
Reacts with (strong) oxidizers: release of (highly) toxic gases/vapours (chlorine).

5.3. ADVICE FOR FIREFIGHTERS

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation.
Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray.

Protection during firefighting : Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Fire-fighters should wear appropriate protective equipment and selfcontained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General measures : Ensure adequate air ventilation.
Avoid all eyes and skin contact and do not breathe vapour and mist. Avoid formation of vapours.

6.2. FOR NON-EMERGENCY PERSONNEL

Protective equipment : Wear protective gloves/protective clothing/eye protection as adviced in section 8.

Emergency procedures : Mark the danger area. Keep containers closed.
Wash contaminated clothes.
In case of reactivity hazard: consider evacuation.

6.3. FOR EMERGENCY RESPONDERS

Protective equipment : Wear protective gloves/protective clothing/eye protection as adviced in section 8.

6.4. ENVIRONMENTAL PRECAUTIONS

Prevent spreading in sewers.

6.5. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

For containment : Any spillage should be cleaned up immediately. Collect spill in closed and suitable containers for disposal. Take up rest of liquid spill into absorbent material sand, earth, vermiculite. Scoop absorbed substance into closing containers.

Methods for cleaning up : Clean contaminated surfaces with an excess of water.
Wash clothing and equipment after handling.

6.6. REFERENCE TO OTHER SECTIONS

See section 1 for emergency contact information.
See section 8 for information on appropriate personal protective equipment.
See section 13 for additional waste treatment information

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7. HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Precautions for safe handling : Warning! Avoid exposure. Obtain special instructions before use.
Avoid contact with skin and eyes. Restricted to professional users.
Wear protective gloves/protective clothing/eye protection as adviced in section 8.

Hygiene measures : Always wash hands after handling the product. Do not eat, drink or smoke during use.
If on skin, take off contaminated clothing.
Contaminated work clothing should not be allowed out of the workplace. Do not discharge the waste into the drain.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical measures : Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.

Storage conditions : Store in original container.

Incompatible products : Bases.

Incompatible materials : May be corrosive to some metals.

Storage area : Store in dry, cool, well-ventilated area. Keep out of direct sunlight.
Meet the legal requirements. Keep locked up.

Special rules on packaging : Meet the legal requirements. correctly labelled.
Secure fragile packagings in solid containers. closing.

Packaging materials : Keep preferably in the original container.
Suitable material: polyethylene, polypropylene, steel

with rubber inner lining.
Unsuitable materials. Stainless steel.

7.3. SPECIFIC END USE(S)
Wastewater treatment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

Sulphuric acid 96% (7664-93-9)		
EU	IOELV TWA (mg/m³)	Sulfuric acid (mist),0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value,0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value,0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value,0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value

Cobalt(II)sulfate (10124-43-3)	
DNEL/DMEL (Workers)	
Long-term - local effects, inhalation	0,1052 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0,025 mg/kg bodyweight/day
Long-term - local effects, inhalation	0,0166 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0,51 µg/l
PNEC aqua (marine water)	2,36 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	9,5 mg/kg dwt
PNEC sediment (marine water)	9,5 mg/kg dwt
PNEC (Soil)	
PNEC soil	7,9 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	0,37 mg/l

Nickel(II) sulfate (7786-81-4)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	16 mg/m³
Acute - local effects, inhalation	0,7 mg/m³
Long-term - local effects, dermal	0,00044 mg/cm²

Nickel(II) sulfate (7786-81-4)	
Long-term - systemic effects, inhalation	0,05 mg/m³
Long-term - local effects, inhalation	0,05 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, inhalation	9,6 mg/m³
Acute - systemic effects, oral	0,012 mg/kg bodyweight
Acute - local effects, inhalation	0,4 mg/m³
Long-term - systemic effects,oral	0,022 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,00002 mg/m³
Long-term - local effects, inhalation	0,00002 mg/m³

Iron(III) chloride 40% (7705-08-0)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	0,57 mg/kg bodyweight/day
Acute - systemic effects, inhalation	2,01 mg/m³
Long-term - systemic effects, dermal	0,57 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	2,01 mg/m³/day
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	0,29 mg/kg bodyweight
Acute - systemic effects, inhalation	0,5 mg/kg bodyweight/day
Acute - systemic effects, oral	0,29 mg/kg bodyweight
Long-term - systemic effects,oral	0,29 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,5 mg/m³/day
Long-term - systemic effects, dermal	0,29 mg/kg bodyweight/day
PNEC (Sediment)	
PNEC sediment (freshwater)	49,5 mg/kg dwt
PNEC sediment (marine water)	49,5 mg/kg dwt
PNEC (Soil)	
PNEC soil	55,5 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	500 mg/l

8.2. EXPOSURE CONTROLS

Appropriate engineering controls	: Provide appropriate exhaust ventilation at places of dust forming. If user operations generate dust/fog, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Personal protective equipment	: 
Hand protection	: Gloves
Material selection gloves	: Good resistance gives:,butyl rubber,PVC,Take advice to your gloves' supplier.
Eye protection	: Safety glasses. Protective goggles.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: Carry operations in the open air/under local exhaust or at sufficient ventilation to keep airborne levels below recommend exposure levels. Mist formation: aerosol mask with filter type P3.
Environmental exposure controls	: In some cases proces modifications will be necessary to reduce emissions to acceptable levels. Emissions from ventilation or work process equipment should be checked to ensure they comply with legislation.
Consumer exposure controls	: Restricted to professional users. Warning! Avoid exposure - obtain special instructions before use.
Other information	: Do not handle until all safety precautions have been read and understood.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Appearance	: Liquid
Colour	: Yellow-brown
Odour	: Odourless
Odour threshold	: No data available
pH	: 0,5 - 2
Explosive limits	: No data available
Vapour pressure	: 23 hPa (as water)
Relative vapour density at 20 °C	: No data available
Density	: 1,230 kg/l
Solubility	: Water: complete
Log Pow	: No data available
Decomposition temperature	: No data available
Explosive properties	: Not explosive
Oxidising properties	: Not applicable

9.2. OTHER INFORMATION
No additional information available

10. STABILITY AND REACTIVITY

10.1. REACTIVITY
On burning: release of toxic and corrosive gases/vapours (sulphur oxides, cobalt oxides, nickel oxides).
On heating: release of toxic and corrosive gases/vapours (hydrogen chloride).
Reacts with (strong) oxidizers: release of (highly) toxic gases/vapours (chlorine).

10.2. CHEMICAL STABILITY
The product is stable at normal handling- and storage conditions.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS
This product can react with strong reducing or oxidizing agents.

10.4. CONDITIONS TO AVOID
Avoid high temperatures.

10.5. INCOMPATIBLE MATERIALS
May be corrosive to some metals.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS
On burning: release of toxic and corrosive gases/vapours (sulphur oxides) and formation of metallic fumes.
On burning: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride).

11. TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS
Acute toxicity : Not classified
Based on available data, the classification criteria are not met

Sulphuric acid 96% (7664-93-9)	
LD50 oral rat	2140 mg/kg (Rat; Experimental value,Rat; Experimental value)
ATE (oral)	2140 mg/kg

potassium sulfate (7778-80-5)	
LD50 oral rat	6600 mg/kg (Rat)

Copper(II) sulfate, pentahydrate (7758-99-8)	
LD50 oral rat	480 mg/kg (Rat, OECD 401)
LD50 dermal rat	> 2000 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)
ATE (oral)	300 mg/kg

Cobalt(II)sulfate (10124-43-3)	
LD50 oral rat	424 mg/kg (Rat)
ATE (oral)	424 mg/kg

Zinc sulfate, monohydrate (7446-19-7)	
LD50 oral rat	926 mg/kg Litton Bionetics 1974
LD50 dermal rat	> 2000 mg/kg bodyweight Van Huygevoort 1999a
ATE (oral)	500 mg/kg

Disodium molybdate 39.5% Mo (10102-40-6)	
LD50 oral rat	4000 mg/kg (Rat)
LD50 dermal rat	> 2000 mg/kg (Rat)
LC50 inhalation rat (mg/l)	> 1,93 mg/l/4h
ATE (oral)	4000 mg/kg

Nickel(II) sulfate (7786-81-4)	
LD50 oral rat	275 - 325 mg/kg (300 mg/kg bodyweight; 361.9 mg/kg bodyweight; Rat; Rat; Rat; Experimental value; Experimental value)
ATE (oral)	500mg/kg

Iron(III) chloride 40% (7705-08-0)	
LD50 oral rat	1160 mg/kg (Rat)
ATE (oral)	1160 mg/kg

Skin corrosion/irritation : Causes skin irritation.
pH: 0,5 - 2

Serious eye damage/irritation : Causes serious eye irritation.
pH: 0,5 - 2

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

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

Carcinogenicity : May cause cancer (inhalation).
May cause cancer by inhalation

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified
Based on available data, the classification criteria are not met.

Specific target organ toxicity (repeated exposure) : Not classified
Based on available data, the classification criteria are not met.

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

Other information : Information on Effects: refer to section 4.

12. ECOLOGICAL INFORMATION

12.1. TOXICITY

Ecology – general : Harmful to aquatic life with long lasting effects.

Sulphuric acid 96% (7664-93-9)	
LC50 fish 1	42 mg/l (96 h; Gambusia affinis)
EC50 Daphnia 1	29 mg/l (24 h; Daphnia magna)
LC50 fish 2	49 mg/l (48 h; Lepomis macrochirus)
EC50 Daphnia 2	> 100 mg/l (48 h; Daphnia magna)
TLM fish 1	42 mg/l (96 h; Gambusia affinis)
Threshold limit other aquatic organisms 1	6900 mg/l (24 h; Pseudomonas fluorescens)
Threshold limit algae 1	> 100 mg/l (72 h; Desmodesmus subspicatus)

Copper(II) sulfate, pentahydrate (7758-99-8)	
LC50 fish 1	1,5 mg/l (24 h; Lepomis macrochirus; TOXICITY TEST)
LC50 fish 2	0,17 mg/l 24 h; Salmo gairdneri (Oncorhynchus mykiss)
TLM fish 1	3,8 ppm (24 h; Salmo gairdneri (Oncorhynchus mykiss); Fresh water)

Cobalt(II)sulfate (10124-43-3)	
LC50 fish 1	52 mg/l (96 h; Pisces; COBALT ION)
EC50 Daphnia 1	0,021 mg/l (48 h; Daphnia magna; COBALT ION)
LC50 fish 2	100 mg/l (48 h; Leuciscus idus; COBALT ION)
EC50 Daphnia 2	0,012 mg/l (504 h; Daphnia magna; REPRODUCTION)
Threshold limit algae 1	<= 0,2 mg/l (72 h; Selenastrum capricornutum; GROWTH RATE)

manganese(II)sulfate, monohydrate (10034-96-5)	
LC50 fish 1	2850 mg/l (96 h; Colisa fasciatus; ANHYDROUS FORM)
EC50 Daphnia 1	8,28 mg/l (48 h; Daphnia magna; ANHYDROUS FORM)
LC50 fish 2	33,8 mg/l (96 h; Pimephales promelas; ANHYDROUS FORM)
EC50 Daphnia 2	10 mg/l (24 h; Daphnia magna; ANHYDROUS FORM)

Zinc sulfate, monohydrate (7446-19-7)	
LC50 fish 1	1,7 mg/l (96 h; Poecilia reticulata; ANHYDROUS FORM)
EC50 Daphnia 1	0,56 mg/l (48 h; Daphnia magna; ANHYDROUS FORM)

Zinc sulfate, monohydrate (7446-19-7)	
LC50 fish 2	2,4 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); ANHYDROUS FORM)
EC50 Daphnia 2	1 mg/l (24 h; Daphnia magna; ANHYDROUS FORM)

Nickel(II) sulfate (7786-81-4)	
LC50 fish 1	> 100 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); NICKEL ION)
EC50 Daphnia 1	9,5 mg/l (48 h; Daphnia magna)
LC50 fish 2	2,9 mg/l (96 h; Pimephales promelas)
TLM fish 1	160 ppm 48 h; Salmo gairdneri (Oncorhynchus mykiss)
Threshold limit algae 1	0,32 mg/l (72 h; Selenastrum capricornutum)
Threshold limit algae 2	0,75 mg/l (72 h; Selenastrum capricornutum)

Iron(III) chloride 40% (7705-08-0)	
LC50 fish 1	23 mg/l (48 h; Oryzias latipes; PURE SUBSTANCE)
EC50 Daphnia 1	29,74 mg/l (48 h; Daphnia magna)
LC50 fish 2	75,6 mg/l (96 h; Gambusia affinis)
TLM fish 1	74 ppm (96 h; Gambusia affinis)
TLM fish 2	540 ppm (1.5 h; Pimephales promelas)

12.2. PERSISTENCE AND DEGRADABILITY

Biopaq Micromix	
Persistence and degradability	In accordance with column 2 of REACH Annex VII, the ready biodegradability test does not need to be conducted as the substance is inorganic.

12.3. BIOACCUMULATIVE POTENTIAL

Biopaq Micromix	
Bioaccumulative potential	Bioaccumulation: not applicable.

Copper(II) sulfate, pentahydrate (7758-99-8)	
Log Pow	Not applicable. Inorganic chemical substance
Bioaccumulative potential	Bioaccumable.

Cobalt(II)sulfate (10124-43-3)	
Bioaccumulative potential	Bioaccumable.

manganese(II)sulfate, monohydrate (10034-96-5)	
Bioaccumulative potential	Bioaccumulation: not applicable.

Zinc sulfate, monohydrate (7446-19-7)	
BCF fish 1	59 - 242 (Cyprinus carpio; ANHYDROUS FORM)

Zinc sulfate, monohydrate (7446-19-7)	
BCF fish 2	59 - 242 (Cyprinus carpio; TEST DURATION: 8 WEEKS)
Log Pow	Not relevant as the substance is inorganic, considered to be low (based on high water solubility)
Bioaccumulative potential	Bioaccumable.

Nickel(II) sulfate (7786-81-4)	
BCF fish 1	106 (720 h; Pimephales promelas)
BCF other aquatic organisms 1	9,3 (144 h; Chlorophyta)
Bioaccumulative potential	Bioaccumulation: not applicable.

Iron(III) chloride 40% (7705-08-0)	
BCF fish 1	<= 100 (Pisces)
Log Pow	No data available
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. MOBILITY IN SOIL

Biopaq Micromix	
Ecology – soil	Soluble in water.

manganese(II)sulfate, monohydrate (10034-96-5)	
Ecology - soil	Soluble in water.

Zinc sulfate, monohydrate (7446-19-7)	
Ecology - soil	Soluble in water.

Nickel(II) sulfate (7786-81-4)	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. RESULTS OF PBT AND VPVB ASSESSMENT

Biopaq Micromix
This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

12.6. OTHER ADVERSE EFFECTS

Other adverse effects : High concentration in receiving water will injure aquatic life by pH effect.

Other information : Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

EURLW code : 06 03 13* - solid salts and solutions containing heavy metals.
Depending on branch of industry and production process, also other EURAL codes may be applicable.

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Do not discharge into drains or rivers. Dispose the product, depending on the degree and type of contamination, either as fertilizer or in an authorized waste disposal site.

Waste disposal recommendations: Remove waste in accordance with local and/or national regulations. Care should be taken when handling emptied containers that have not been cleaned or rinsed out.

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14. TRANSPORT INFORMATION

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN NUMBER

UN-No. : 2582

14.2. UN PROPER SHIPPING NAME

Proper Shipping Name : FERRIC CHLORIDE SOLUTION

Transport document description : UN 2582 FERRIC CHLORIDE SOLUTION, 8, III, (E)

14.3. TRANSPORT HAZARD CLASS(ES)

Class (UN) : 8

Hazard labels (UN) : 8

14.4. PACKING GROUP

Packing group (UN) : III

14.5. ENVIRONMENTAL HAZARDS

Other information : No supplementary information available.

14.6. SPECIAL PRECAUTIONS FOR USER

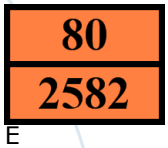
Special transport precautions : This product is corrosive to metals.

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 80

Classification code (ADR) : C1

Orange plates :



Tunnel restriction code : E

Excepted quantities (ADR) : E1

EAC code : 2X

14.6.2. Transport by sea

Limited quantities (IMDG) 5L

EmS-No. (1) F-A, S-B

14.6.3. Air transport

No additional information available

14.7. TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

IBC code : IBC03

15. REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

15.1.1. EU-Regulations

Extra phrases : Reserved for industrial and professional use. Contains Cobalt(II)sulfate(10124-43-3). May produce an allergic reaction.

EURLW code : 06 03 13*

15.1.2. National regulations

No additional information available

15.2. CHEMICAL SAFETY ASSESSMENT

Not applicable.

16. OTHER INFORMATION

Above data apply only to the product mentioned in chapter 1 and under the circumstances as mentioned in this material safety data sheet.
These data do not apply with restriction if this product is used in combination with other materials and with restrictions if it is used in a process.
Although this material safety data sheet is composed with great care, Paques bv cannot accept any liability for harmful effects that may occur when using this product. The user should convince himself before he starts using this product if the data is complete and the product is suitable for the process where it will be used in.

Revision date : 2-6-2015

Safety Data Sheet (SDS)		
Paques bv		
EC 453/2010	Date: 28-02-2005	Revision: 2.6.2015
Name: Biopaq Micromix		

Date of issue : 28-02-2005
Supersedes : 20-2-2015
Indication of changes : This safety data sheet is fully revised according to the CLP and REACH regulations. Chapters 3 and 16 have been modified since the previous version.

SDS changed items

Data sources : BIG-database
ECHA Website: Information on Registered Substances
Handbook of Chemistry and Physics CRC Press Inc
Information from suppliers.

Abbreviations and acronyms : CLP = Classification, labelling and packaging
DNEL = Derivative No Effect Level
n.a. = not applicable
PNEC = Predicted No Effect Concentration
REACH = Registration, evaluation and autorisation of chemicals.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging. Before using/handling the product one must read carefully the MSDS.

Full text of H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 1A	Carcinogenicity (inhalation) Category 1A
Carc. 1B	Carcinogenicity Category 1B
Carc. 1B	Carcinogenicity (inhalation) Category 1B
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Met. Corr. 1	Corrosive to metals Category 1
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1B	Reproductive toxicity Category 1B
Repr. 1B	Reproductive toxicity Category 1B
Resp. Sens. 1	Respiratory sensitisation Category 1
Skin Corr. 1A	skin corrosion/irritation Category 1A
Skin Corr. 1B	skin corrosion/irritation Category 1B
Skin Irrit. 2	skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitisation Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H290	May be corrosive to metals
H302	Harmful if swallowed

Safety Data Sheet (SDS)		
Paques bv		
EC 453/2010	Date: 28-02-2005	Revision: 2.6.2015
Name: Biopaq Micromix		

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
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H360D	May damage the unborn child
H360F	May damage fertility
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Safety Data Sheet (SDS)		
Paques bv		
EC 453/2010	Date: 28-02-2005	Revision: 2.6.2015
Name: Biopaq Micromix		

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. PRODUCT IDENTIFIER

Product form : Mixture
Trade name : Biopaq Micromix

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

1.2.1. Relevant identified uses

Main use category : Industrial use
Professional use
Use of the substance/preparation : Waste water treatment
Function or use category : Water treatment chemicals

1.2.2. Uses advised against

No additional information available

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Name : Paques bv
Address : T. de Boerstraat 24
Postbus 52
8560 AB BALK
Telephone : +31 (0) 514-608 500
Facsimile : +31 (0) 514-603 342
E-mail : services@paques.nl
Telephone in case of emergency :+31 (0) 620 705 748

1.4. EMERGENCY TELEPHONE NUMBER

Country	Official advisory body	Address	Emergency number
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	0870 243 2241

2. HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

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

Met. Corr. 1 : H290
Skin Irrit. 2 : H315
Eye Irrit. 2 : H319
Skin Sens. 1 : H317
Carc. 1B : H350
Aquatic Chronic 3 : H412

Full text of H-phrases: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. LABEL ELEMENTS

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

Hazard pictograms (CLP) :

GHS05 GHS07 GHS08

CLP Signal word : Danger

Hazardous ingredients : Cobalt(II)sulfate, Iron(III) chloride, Nickel(II) sulfate

Hazard statements (CLP) : H290 - May be corrosive to metals
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H350 - May cause cancer (inhalation)
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) : P202 - Do not handle until all safety precautions have been read and understood
P261 - Avoid breathing vapours, mist, spray
P280 - Wear protective gloves, protective clothing, eye protection
P302+P352 - IF ON SKIN: Wash with plenty of soap and 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
P308+P313 - IF exposed or concerned: Get medical advice/attention

2.3. OTHER HAZARDS

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

Not applicable

3.2. MIXTURES

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Iron(III) chloride 40%	(CAS No.) 7705-08-0 (EC no) 231-729-4 (REACH-no) 01-2119497998-05	<= 10	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314
Sulphuric acid 96%	(CAS No.) 7664-93-9 (EC no) 231-639-5 (EC index no) 016-020-00-8 (REACH-no) 01-2119458838-20	<= 3	Met. Corr. 1, H290 Skin Corr. 1A, H314
Copper(II) sulfate, pentahydrate	(CAS No.) 7758-99-8 (EC no) 231-847-6 (EC index no) 029-004-00-0 (REACH-no) 01-2119520566-40	<= 0,6	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Skin Irrit. 2, H315 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
manganese(II)sulfate, monohydrate	(CAS No.) 10034-96-5 (EC no) 232-089-9 (EC index no) 025-003-00-4 (REACH-no) 01-2119456624-35	<= 0,3	Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Chronic 2, H411
Nickel(II) sulfate	(CAS No.) 7786-81-4 (EC no) 232-104-9 (EC index no) 028-009-00-5 (REACH-no) 01-2119439361-44	<= 0,2	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1A, H350i Repr. 1B, H360D STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Zinc sulfate, monohydrate	(CAS No.) 7446-19-7 (EC no) 231-793-3 (EC index no) 030-006-00-9 (REACH-no) 01-2119474684-27	<= 0,2	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Cobalt(II)sulfate substance listed as REACH Candidate (Cobalt(II) sulphate)	(CAS No.) 10124-43-3 (EC no) 233-334-2 (EC index no) 027-005-00-0 (REACH-no) 01-02119517426-41	<= 0,1	Acute Tox. 4 (Oral), H302 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350i Repr. 1B, H360F Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10)

Full text of H- and EUH-phrases: see section 16

4. FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

First-aid measures general : Check the vital functions.
Unconscious: maintain adequate airway and respiration.
Respiratory arrest: artificial respiration or oxygen.
Cardiac arrest: perform resuscitation.
Victim conscious with laboured breathing: half-seated.
Victim in shock: on back; legs slightly raised.
Vomiting: prevent asphyxia/aspiration pneumonia.
Prevent cooling by covering the victim (no warming up).
Keep watching the victim.
Give psychological aid.
Keep the victim calm, avoid physical strain.
Depending on the victim's condition: doctor/hospital

First-aid measures after inhalation : Remove the victim into fresh air. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Unconscious: maintain adequate airway and respiration.
Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents.
Take victim to a doctor if irritation persists.

First-aid measures after eye contact : Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing.
Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink.
Do not induce vomiting. Consult a doctor/medical service if you feel unwell.
Ingestion of large quantities: immediately to hospital.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Symptoms/injuries after inhalation : Dry/sore throat.Coughing

Symptoms/injuries after skin contact : Slight irritation

Symptoms/injuries after eye contact : Redness of the eye tissue

Symptoms/injuries after ingestion : Nausea. Vomiting. Cramps/uncontrolled muscular contractions

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Follow the advices in chapter 4.1. Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media : Extinguishing media for surrounding fires : All extinguishing media allowed.
Use fire extinguishing methods suitable to surrounding conditions.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire hazard : Direct fire hazard: Non combustible

Explosion hazard : No direct explosion hazard

Reactivity : On burning: release of toxic and corrosive gases/vapours (sulphur oxides, cobalt oxides, nickel oxides).
On heating: release of toxic and corrosive gases/vapours (hydrogen chloride).
Reacts with (strong) oxidizers: release of (highly) toxic gases/vapours (chlorine).

5.3. ADVICE FOR FIREFIGHTERS

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation.
Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray.

Protection during firefighting : Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Fire-fighters should wear appropriate protective equipment and selfcontained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General measures : Ensure adequate air ventilation.
Avoid all eyes and skin contact and do not breathe vapour and mist. Avoid formation of vapours.

6.2. FOR NON-EMERGENCY PERSONNEL

Protective equipment : Wear protective gloves/protective clothing/eye protection as adviced in section 8.

Emergency procedures : Mark the danger area. Keep containers closed.
Wash contaminated clothes.
In case of reactivity hazard: consider evacuation.

6.3. FOR EMERGENCY RESPONDERS

Protective equipment : Wear protective gloves/protective clothing/eye protection as adviced in section 8.

6.4. ENVIRONMENTAL PRECAUTIONS

Prevent spreading in sewers.

6.5. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

For containment : Any spillage should be cleaned up immediately. Collect spill in closed and suitable containers for disposal. Take up rest of liquid spill into absorbent material sand, earth, vermiculite. Scoop absorbed substance into closing containers.

Methods for cleaning up : Clean contaminated surfaces with an excess of water.
Wash clothing and equipment after handling.

6.6. REFERENCE TO OTHER SECTIONS

See section 1 for emergency contact information.
See section 8 for information on appropriate personal protective equipment.
See section 13 for additional waste treatment information

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7. HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Precautions for safe handling : Warning! Avoid exposure. Obtain special instructions before use.
Avoid contact with skin and eyes. Restricted to professional users.
Wear protective gloves/protective clothing/eye protection as adviced in section 8.

Hygiene measures : Always wash hands after handling the product. Do not eat, drink or smoke during use.
If on skin, take off contaminated clothing.
Contaminated work clothing should not be allowed out of the workplace. Do not discharge the waste into the drain.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical measures : Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.

Storage conditions : Store in original container.

Incompatible products : Bases.

Incompatible materials : May be corrosive to some metals.

Storage area : Store in dry, cool, well-ventilated area. Keep out of direct sunlight.
Meet the legal requirements. Keep locked up.

Special rules on packaging : Meet the legal requirements. correctly labelled.
Secure fragile packagings in solid containers. closing.

Packaging materials : Keep preferably in the original container.
Suitable material: polyethylene, polypropylene, steel

with rubber inner lining.
Unsuitable materials. Stainless steel.

7.3. SPECIFIC END USE(S)
Wastewater treatment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

Sulphuric acid 96% (7664-93-9)		
EU	IOELV TWA (mg/m³)	Sulfuric acid (mist),0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value,0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value,0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value,0.05 mg/m³; EU; Time-weighted average exposure limit 8 h; Private occupational exposure limit value

Cobalt(II)sulfate (10124-43-3)	
DNEL/DMEL (Workers)	
Long-term - local effects, inhalation	0,1052 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0,025 mg/kg bodyweight/day
Long-term - local effects, inhalation	0,0166 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0,51 µg/l
PNEC aqua (marine water)	2,36 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	9,5 mg/kg dwt
PNEC sediment (marine water)	9,5 mg/kg dwt
PNEC (Soil)	
PNEC soil	7,9 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	0,37 mg/l

Nickel(II) sulfate (7786-81-4)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	16 mg/m³
Acute - local effects, inhalation	0,7 mg/m³
Long-term - local effects, dermal	0,00044 mg/cm²

Nickel(II) sulfate (7786-81-4)	
Long-term - systemic effects, inhalation	0,05 mg/m³
Long-term - local effects, inhalation	0,05 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, inhalation	9,6 mg/m³
Acute - systemic effects, oral	0,012 mg/kg bodyweight
Acute - local effects, inhalation	0,4 mg/m³
Long-term - systemic effects,oral	0,022 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,00002 mg/m³
Long-term - local effects, inhalation	0,00002 mg/m³

Iron(III) chloride 40% (7705-08-0)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	0,57 mg/kg bodyweight/day
Acute - systemic effects, inhalation	2,01 mg/m³
Long-term - systemic effects, dermal	0,57 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	2,01 mg/m³/day
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	0,29 mg/kg bodyweight
Acute - systemic effects, inhalation	0,5 mg/kg bodyweight/day
Acute - systemic effects, oral	0,29 mg/kg bodyweight
Long-term - systemic effects,oral	0,29 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,5 mg/m³/day
Long-term - systemic effects, dermal	0,29 mg/kg bodyweight/day
PNEC (Sediment)	
PNEC sediment (freshwater)	49,5 mg/kg dwt
PNEC sediment (marine water)	49,5 mg/kg dwt
PNEC (Soil)	
PNEC soil	55,5 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	500 mg/l

8.2. EXPOSURE CONTROLS

Appropriate engineering controls	: Provide appropriate exhaust ventilation at places of dust forming. If user operations generate dust/fog, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Personal protective equipment	: 
Hand protection	: Gloves
Material selection gloves	: Good resistance gives:,butyl rubber,PVC,Take advice to your gloves' supplier.
Eye protection	: Safety glasses. Protective goggles.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: Carry operations in the open air/under local exhaust or at sufficient ventilation to keep airborne levels below recommend exposure levels. Mist formation: aerosol mask with filter type P3.
Environmental exposure controls	: In some cases proces modifications will be necessary to reduce emissions to acceptable levels. Emissions from ventilation or work process equipment should be checked to ensure they comply with legislation.
Consumer exposure controls	: Restricted to professional users. Warning! Avoid exposure - obtain special instructions before use.
Other information	: Do not handle until all safety precautions have been read and understood.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Appearance	: Liquid
Colour	: Yellow-brown
Odour	: Odourless
Odour threshold	: No data available
pH	: 0,5 - 2
Explosive limits	: No data available
Vapour pressure	: 23 hPa (as water)
Relative vapour density at 20 °C	: No data available
Density	: 1,230 kg/l
Solubility	: Water: complete
Log Pow	: No data available
Decomposition temperature	: No data available
Explosive properties	: Not explosive
Oxidising properties	: Not applicable

9.2. OTHER INFORMATION
No additional information available

10. STABILITY AND REACTIVITY

10.1. REACTIVITY
On burning: release of toxic and corrosive gases/vapours (sulphur oxides, cobalt oxides, nickel oxides).
On heating: release of toxic and corrosive gases/vapours (hydrogen chloride).
Reacts with (strong) oxidizers: release of (highly) toxic gases/vapours (chlorine).

10.2. CHEMICAL STABILITY
The product is stable at normal handling- and storage conditions.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS
This product can react with strong reducing or oxidizing agents.

10.4. CONDITIONS TO AVOID
Avoid high temperatures.

10.5. INCOMPATIBLE MATERIALS
May be corrosive to some metals.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS
On burning: release of toxic and corrosive gases/vapours (sulphur oxides) and formation of metallic fumes.
On burning: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride).

11. TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS
Acute toxicity : Not classified
Based on available data, the classification criteria are not met

Sulphuric acid 96% (7664-93-9)	
LD50 oral rat	2140 mg/kg (Rat; Experimental value,Rat; Experimental value)
ATE (oral)	2140 mg/kg

potassium sulfate (7778-80-5)	
LD50 oral rat	6600 mg/kg (Rat)

Copper(II) sulfate, pentahydrate (7758-99-8)	
LD50 oral rat	480 mg/kg (Rat, OECD 401)
LD50 dermal rat	> 2000 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)
ATE (oral)	300 mg/kg

Cobalt(II)sulfate (10124-43-3)	
LD50 oral rat	424 mg/kg (Rat)
ATE (oral)	424 mg/kg

Zinc sulfate, monohydrate (7446-19-7)	
LD50 oral rat	926 mg/kg Litton Bionetics 1974
LD50 dermal rat	> 2000 mg/kg bodyweight Van Huygevoort 1999a
ATE (oral)	500 mg/kg

Disodium molybdate 39.5% Mo (10102-40-6)	
LD50 oral rat	4000 mg/kg (Rat)
LD50 dermal rat	> 2000 mg/kg (Rat)
LC50 inhalation rat (mg/l)	> 1,93 mg/l/4h
ATE (oral)	4000 mg/kg

Nickel(II) sulfate (7786-81-4)	
LD50 oral rat	275 - 325 mg/kg (300 mg/kg bodyweight; 361.9 mg/kg bodyweight; Rat; Rat; Rat; Experimental value; Experimental value)
ATE (oral)	500mg/kg

Iron(III) chloride 40% (7705-08-0)	
LD50 oral rat	1160 mg/kg (Rat)
ATE (oral)	1160 mg/kg

Skin corrosion/irritation : Causes skin irritation.
pH: 0,5 - 2

Serious eye damage/irritation : Causes serious eye irritation.
pH: 0,5 - 2

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

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

Carcinogenicity : May cause cancer (inhalation).
May cause cancer by inhalation

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified
Based on available data, the classification criteria are not met.

Specific target organ toxicity (repeated exposure) : Not classified
Based on available data, the classification criteria are not met.

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

Other information : Information on Effects: refer to section 4.

12. ECOLOGICAL INFORMATION

12.1. TOXICITY

Ecology – general : Harmful to aquatic life with long lasting effects.

Sulphuric acid 96% (7664-93-9)	
LC50 fish 1	42 mg/l (96 h; Gambusia affinis)
EC50 Daphnia 1	29 mg/l (24 h; Daphnia magna)
LC50 fish 2	49 mg/l (48 h; Lepomis macrochirus)
EC50 Daphnia 2	> 100 mg/l (48 h; Daphnia magna)
TLM fish 1	42 mg/l (96 h; Gambusia affinis)
Threshold limit other aquatic organisms 1	6900 mg/l (24 h; Pseudomonas fluorescens)
Threshold limit algae 1	> 100 mg/l (72 h; Desmodesmus subspicatus)

Copper(II) sulfate, pentahydrate (7758-99-8)	
LC50 fish 1	1,5 mg/l (24 h; Lepomis macrochirus; TOXICITY TEST)
LC50 fish 2	0,17 mg/l 24 h; Salmo gairdneri (Oncorhynchus mykiss)
TLM fish 1	3,8 ppm (24 h; Salmo gairdneri (Oncorhynchus mykiss); Fresh water)

Cobalt(II)sulfate (10124-43-3)	
LC50 fish 1	52 mg/l (96 h; Pisces; COBALT ION)
EC50 Daphnia 1	0,021 mg/l (48 h; Daphnia magna; COBALT ION)
LC50 fish 2	100 mg/l (48 h; Leuciscus idus; COBALT ION)
EC50 Daphnia 2	0,012 mg/l (504 h; Daphnia magna; REPRODUCTION)
Threshold limit algae 1	<= 0,2 mg/l (72 h; Selenastrum capricornutum; GROWTH RATE)

manganese(II)sulfate, monohydrate (10034-96-5)	
LC50 fish 1	2850 mg/l (96 h; Colisa fasciatus; ANHYDROUS FORM)
EC50 Daphnia 1	8,28 mg/l (48 h; Daphnia magna; ANHYDROUS FORM)
LC50 fish 2	33,8 mg/l (96 h; Pimephales promelas; ANHYDROUS FORM)
EC50 Daphnia 2	10 mg/l (24 h; Daphnia magna; ANHYDROUS FORM)

Zinc sulfate, monohydrate (7446-19-7)	
LC50 fish 1	1,7 mg/l (96 h; Poecilia reticulata; ANHYDROUS FORM)
EC50 Daphnia 1	0,56 mg/l (48 h; Daphnia magna; ANHYDROUS FORM)

Zinc sulfate, monohydrate (7446-19-7)	
LC50 fish 2	2,4 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); ANHYDROUS FORM)
EC50 Daphnia 2	1 mg/l (24 h; Daphnia magna; ANHYDROUS FORM)

Nickel(II) sulfate (7786-81-4)	
LC50 fish 1	> 100 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); NICKEL ION)
EC50 Daphnia 1	9,5 mg/l (48 h; Daphnia magna)
LC50 fish 2	2,9 mg/l (96 h; Pimephales promelas)
TLM fish 1	160 ppm 48 h; Salmo gairdneri (Oncorhynchus mykiss)
Threshold limit algae 1	0,32 mg/l (72 h; Selenastrum capricornutum)
Threshold limit algae 2	0,75 mg/l (72 h; Selenastrum capricornutum)

Iron(III) chloride 40% (7705-08-0)	
LC50 fish 1	23 mg/l (48 h; Oryzias latipes; PURE SUBSTANCE)
EC50 Daphnia 1	29,74 mg/l (48 h; Daphnia magna)
LC50 fish 2	75,6 mg/l (96 h; Gambusia affinis)
TLM fish 1	74 ppm (96 h; Gambusia affinis)
TLM fish 2	540 ppm (1.5 h; Pimephales promelas)

12.2. PERSISTENCE AND DEGRADABILITY

Biopaq Micromix	
Persistence and degradability	In accordance with column 2 of REACH Annex VII, the ready biodegradability test does not need to be conducted as the substance is inorganic.

12.3. BIOACCUMULATIVE POTENTIAL

Biopaq Micromix	
Bioaccumulative potential	Bioaccumulation: not applicable.

Copper(II) sulfate, pentahydrate (7758-99-8)	
Log Pow	Not applicable. Inorganic chemical substance
Bioaccumulative potential	Bioaccumable.

Cobalt(II)sulfate (10124-43-3)	
Bioaccumulative potential	Bioaccumable.

manganese(II)sulfate, monohydrate (10034-96-5)	
Bioaccumulative potential	Bioaccumulation: not applicable.

Zinc sulfate, monohydrate (7446-19-7)	
BCF fish 1	59 - 242 (Cyprinus carpio; ANHYDROUS FORM)

Zinc sulfate, monohydrate (7446-19-7)	
BCF fish 2	59 - 242 (Cyprinus carpio; TEST DURATION: 8 WEEKS)
Log Pow	Not relevant as the substance is inorganic, considered to be low (based on high water solubility)
Bioaccumulative potential	Bioaccumable.

Nickel(II) sulfate (7786-81-4)	
BCF fish 1	106 (720 h; Pimephales promelas)
BCF other aquatic organisms 1	9,3 (144 h; Chlorophyta)
Bioaccumulative potential	Bioaccumulation: not applicable.

Iron(III) chloride 40% (7705-08-0)	
BCF fish 1	<= 100 (Pisces)
Log Pow	No data available
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. MOBILITY IN SOIL

Biopaq Micromix	
Ecology – soil	Soluble in water.

manganese(II)sulfate, monohydrate (10034-96-5)	
Ecology - soil	Soluble in water.

Zinc sulfate, monohydrate (7446-19-7)	
Ecology - soil	Soluble in water.

Nickel(II) sulfate (7786-81-4)	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. RESULTS OF PBT AND VPVB ASSESSMENT

Biopaq Micromix
This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

12.6. OTHER ADVERSE EFFECTS

Other adverse effects : High concentration in receiving water will injure aquatic life by pH effect.

Other information : Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

EURLW code : 06 03 13* - solid salts and solutions containing heavy metals.
Depending on branch of industry and production process, also other EURAL codes may be applicable.

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Do not discharge into drains or rivers. Dispose the product, depending on the degree and type of contamination, either as fertilizer or in an authorized waste disposal site.

Waste disposal recommendations: Remove waste in accordance with local and/or national regulations. Care should be taken when handling emptied containers that have not been cleaned or rinsed out.

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14. TRANSPORT INFORMATION

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN NUMBER

UN-No. : 2582

14.2. UN PROPER SHIPPING NAME

Proper Shipping Name : FERRIC CHLORIDE SOLUTION

Transport document description : UN 2582 FERRIC CHLORIDE SOLUTION, 8, III, (E)

14.3. TRANSPORT HAZARD CLASS(ES)

Class (UN) : 8

Hazard labels (UN) : 8

14.4. PACKING GROUP

Packing group (UN) : III

14.5. ENVIRONMENTAL HAZARDS

Other information : No supplementary information available.

14.6. SPECIAL PRECAUTIONS FOR USER

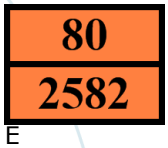
Special transport precautions : This product is corrosive to metals.

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 80

Classification code (ADR) : C1

Orange plates :



Tunnel restriction code : E

Excepted quantities (ADR) : E1

EAC code : 2X

14.6.2. Transport by sea

Limited quantities (IMDG) 5L

EmS-No. (1) F-A, S-B

14.6.3. Air transport

No additional information available

14.7. TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

IBC code : IBC03

15. REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

15.1.1. EU-Regulations

Extra phrases : Reserved for industrial and professional use. Contains Cobalt(II)sulfate(10124-43-3). May produce an allergic reaction.

EURLW code : 06 03 13*

15.1.2. National regulations

No additional information available

15.2. CHEMICAL SAFETY ASSESSMENT

Not applicable.

16. OTHER INFORMATION

Above data apply only to the product mentioned in chapter 1 and under the circumstances as mentioned in this material safety data sheet.
These data do not apply with restriction if this product is used in combination with other materials and with restrictions if it is used in a process.
Although this material safety data sheet is composed with great care, Paques bv cannot accept any liability for harmful effects that may occur when using this product. The user should convince himself before he starts using this product if the data is complete and the product is suitable for the process where it will be used in.

Revision date : 2-6-2015

Safety Data Sheet (SDS)		
Paques bv		
EC 453/2010	Date: 28-02-2005	Revision: 2.6.2015
Name: Biopaq Micromix		

Date of issue : 28-02-2005
Supersedes : 20-2-2015
Indication of changes : This safety data sheet is fully revised according to the CLP and REACH regulations. Chapters 3 and 16 have been modified since the previous version.

SDS changed items

Data sources : BIG-database
ECHA Website: Information on Registered Substances
Handbook of Chemistry and Physics CRC Press Inc
Information from suppliers.

Abbreviations and acronyms : CLP = Classification, labelling and packaging
DNEL = Derivative No Effect Level
n.a. = not applicable
PNEC = Predicted No Effect Concentration
REACH = Registration, evaluation and autorisation of chemicals.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging. Before using/handling the product one must read carefully the MSDS.

Full text of H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 1A	Carcinogenicity (inhalation) Category 1A
Carc. 1B	Carcinogenicity Category 1B
Carc. 1B	Carcinogenicity (inhalation) Category 1B
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Met. Corr. 1	Corrosive to metals Category 1
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1B	Reproductive toxicity Category 1B
Repr. 1B	Reproductive toxicity Category 1B
Resp. Sens. 1	Respiratory sensitisation Category 1
Skin Corr. 1A	skin corrosion/irritation Category 1A
Skin Corr. 1B	skin corrosion/irritation Category 1B
Skin Irrit. 2	skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitisation Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H290	May be corrosive to metals
H302	Harmful if swallowed

Safety Data Sheet (SDS)		
Paques bv		
EC 453/2010	Date: 28-02-2005	Revision: 2.6.2015
Name: Biopaq Micromix		

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
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H360D	May damage the unborn child
H360F	May damage fertility
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Precautionary statement(s)	
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	2,2′-MethyliminodiethanolMDEAN,N-Diethanolmethylamin*N*,*N*-Bis(2-hydroxyethyl)methylamine
Formula	:	$C_5H_{13}NO_2$
Molecular weight	:	119,16 g/mol
CAS-No.	:	105-59-9
EC-No.	:	203-312-7
Index-No.	:	603-079-00-5

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component		Classification	Concentration
N-Methyldiethanolamine			
CAS-No. EC-No. Index-No.	105-59-9 203-312-7 603-079-00-5	Eye Irrit. 2; H319	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of

contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0,6 mm
Break through time: 480 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 120 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, viscous liquid Colour: light yellow
b)	Odour	ammoniacal
c)	Odour Threshold	No data available
d)	pH	11,5 at 100 g/l at 20 °C
e)	Melting point/freezing point	Melting point/range: -21,3 °C
f)	Initial boiling point and boiling range	246 - 248 °C - lit.
g)	Flash point	127 °C - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8,8 %(V) Lower explosion limit: 1,4 %(V)

k)	Vapour pressure	0,01 hPa at 20 °C
l)	Vapour density	4,11 - (Air = 1.0)
m)	Relative density	1,038 g/cm3 at 25 °C
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	log Pow: -1,08
p)	Auto-ignition temperature	280 °C at 1.013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Dissociation constant	8,52 at 25 °C
Relative vapour density	4,11 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Do not store near acids.

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 4.680 mg/kg
(OECD Test Guideline 401)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test - Guinea pig

Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
in vitro assay
S. typhimurium
Result: negative

Mutagenicity (micronucleus test)
Mouse - male and female
Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Reproductive toxicity - Rat - Skin
Maternal Effects: Other effects.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Cough, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - 1.466 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 233 mg/l - 48 h
Toxicity to algae	static test EC50 - Desmodesmus subspicatus (Scenedesmus subspicatus) - > 100 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 7 % - Not biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

14.4 Packaging group

ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors	: N-Methyldiethanolamine
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	: Neither banned nor restricted
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	: Neither banned nor restricted
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006.
Listed substance / Sunset Date:

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	: Neither banned nor restricted
Regulation (EC) No 850/2004 on persistent organic pollutants	: Neither banned nor restricted

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H319	Causes serious eye irritation.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 12.12.2019 Version 2.0

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

1.1 Product identifier

Catalogue No.	533003
Product name	Ammonia solution 25% for LC-MS LiChropur®
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin corrosion, Category 1B, H314
Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335
Short-term (acute) aquatic hazard, Category 1, H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Precautionary statements
Prevention
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.

Precautionary statements
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

2.3 Other hazards
None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous ammoniacal solution.

3.1 Substance
Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
ammonia solution (>= 25 % - < 50 %)		
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.		
1336-21-6	01-2119488876-14-xxxx	Skin corrosion, Category 1B, H314 Specific target organ toxicity - single exposure, Category 3, H335 Short-term (acute) aquatic hazard, Category 1, H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice
First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, bronchitis, Cough, Shortness of breath, gastric pain, Unconsciousness, Bloody vomiting, Nausea, collapse, shock, Convulsions, Lung oedema, death
Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.
Ambient fire may liberate hazardous vapours.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not empty into drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH^-, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
No metal or light-weight-metal containers.

Storage conditions

Tightly closed.

Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

ammonia solution (1336-21-6)

Worker DNEL, acute	Systemic effects	dermal	6,8 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	dermal	6,8 mg/kg Body weight
Worker DNEL, acute	Systemic effects	inhalation	47,6 mg/m³
Worker DNEL, acute	Local effects	inhalation	36 mg/m³
Worker DNEL, longterm	Systemic effects	inhalation	47,6 mg/m³
Worker DNEL, longterm	Local effects	inhalation	14 mg/m³
Consumer DNEL, acute	Systemic effects	dermal	68 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	dermal	68 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	inhalation	23,8 mg/m³
Consumer DNEL, acute	Local effects	inhalation	7,2 mg/m³
Consumer DNEL, longterm	Systemic effects	inhalation	23,8 mg/m³
Consumer DNEL, longterm	Local effects	inhalation	2,8 mg/m³
Consumer DNEL, acute	Systemic effects	oral	6,8 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	6,8 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

ammonia solution (1336-21-6)

PNEC Fresh water	0,0011 mg/l
PNEC Aquatic intermittent release	0,0068 mg/l
PNEC Marine water	0,00011 mg/l

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection
Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	240 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 730 Camatril® -Velours (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Recommended Filter type: Filter K (acc. to DIN 3181) for NH_3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.

Environmental exposure controls
Do not empty into drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	stinging

Odour Threshold	0,02 - 70,7 ppm Ammonia
pH	at 20 °C strongly alkaline
Melting point	-57,5 °C
Boiling point/boiling range	37,7 °C at 1.013 hPa
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	15,4 %(V)
Upper explosion limit	33,6 %(V)
Vapour pressure	483 hPa at 20 °C
Relative vapour density	No information available.
Density	0,903 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: -1,38 (experimental) (anhydrous substance) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Minimum ignition energy 380 - 680 mJ

SECTION 10. Stability and reactivity

10.1 Reactivity
See section 10.3

10.2 Chemical stability
Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.

10.3 Possibility of hazardous reactions
A risk of explosion and/or of toxic gas formation exists with the following substances:

Oxidizing agents, Mercury, Oxygen, silver compounds, nitrogen trichloride, hydrogen peroxide, silver, antimony hydride, halogens, Acids, Calcium, Chlorine, Chlorites, auric salts, perchlorates, sodium hypochlorite, mercury compounds, halogen oxides

Heavy metals, Heavy metal salts, Acid chlorides, Acid anhydrides

Risk of ignition or formation of inflammable gases or vapours with:

Boranes, Boron, Oxides of phosphorus, Nitric acid, silicon compounds, chromium(VI) oxide, chromyl chloride

Exothermic reaction with:

Acetaldehyde, Acrolein, Barium, boron compounds, Bromine, halogen-halogen compounds, hydrogen bromide, silane, Hydrogen chloride gas, halogen compounds, dimethylsulfate, nitrogen oxides, Fluorine, Hydrogen fluoride, chlorates, carbon dioxide

Ethylene oxide, polymerisable

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Aluminium, Lead, Nickel, silver, Zinc, Copper, metal alloys, various metals

10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects
Mixture

Acute oral toxicity
LDLO human: 43 mg/kg

(29% solution) (RTECS)

Symptoms: gastric pain, Bloody vomiting, If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, bronchitis, Possible damages:, damage of respiratory tract

Acute dermal toxicity
This information is not available.

Skin irritation
Rabbit
Result: Severe irritations

(29% solution) (RTECS)

Dermatitis Necrosis
Mixture causes burns.

Eye irritation
Rabbit
Result: Severe irritations

(29% solution) (RTECS)

Mixture causes serious eye damage. Risk of blindness!

Sensitisation
This information is not available.

Germ cell mutagenicity
This information is not available.

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
Mixture may cause respiratory irritation.
Target Organs: Respiratory system

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information

Systemic effects:
Nausea, collapse, shock, Unconsciousness, Convulsions
Lung oedema, Possible effects:
death
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

ammonia solution
No information available.

SECTION 12. Ecological information

Mixture

12.1 Toxicity
No information available.

12.2 Persistence and degradability
Biodegradability

Not readily biodegradable.

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: -1,38
(experimental)

(anhydrous substance) (Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects
Additional ecological information
Biological effects:
Harmful effect due to pH shift.
Forms toxic and corrosive mixtures with water even if diluted.
Discharge into the environment must be avoided.

Components
ammonia solution

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

SECTION 13. Disposal considerations

Waste treatment methods
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 2672
14.2 Proper shipping name	AMMONIA SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 2672
14.2 Proper shipping name	AMMONIA SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 2672
14.2 Proper shipping name	AMMONIA SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
EmS	F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard Legislation	SEVESO III ENVIRONMENTAL HAZARDS E1 Quantity 1: 100 t Quantity 2: 200 t
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation

Storage class	8B

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

Training advice
Provide adequate information, instruction and training for operators.

Labelling
Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Precautionary statements
Prevention
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Relevant changes since previous version
2. Hazards identification
9. Physical and chemical properties

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation
This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

SAFETY DATA SHEET

PRODUCT

NALCO® 7399

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO® 7399**

APPLICATION : CORROSION INHIBITOR, SCALE INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin or on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available. Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Not expected to burn. Use extinguishing media appropriate for surrounding fire. Keep containers cool by spraying with water.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed.

UNSUITABLE CONSTRUCTION MATERIAL :
Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is:
Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	None

SPECIFIC GRAVITY	1.22 - 1.26 @ 77 °F / 25 °C
DENSITY	10 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	6.3 - 10.0
VISCOSITY	15 cps @ 77 °F / 25 °C
FREEZING POINT	28.4 °F / -2 °C
BOILING POINT	212 °F / 100 °C

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Extremes of temperature

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of phosphorus, Oxides of carbon

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	> 1,000 mg/l	Product
Rainbow Trout	96 hrs	880 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Mysid Shrimp (Mysidopsis bahia)	96 hrs	> 1,000 mg/l		Product
Daphnia magna	48 hrs	> 500 mg/l		Product

CHRONIC FISH RESULTS :

Species	Exposure	NOEC / LOEC	End Point	Test Descriptor
Fathead Minnow	7 Days	313 mg/l / 625 mg/l	Growth	Product

CHRONIC INVERTEBRATE RESULTS :

Species	Test Type	NOEC / LOEC	End Point	Test Descriptor
Ceriodaphnia dubia	3 Brood	313 mg/l / 625 mg/l	Reproduction	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 2,500 mg/l

Chemical Oxygen Demand (COD) : 4,600 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	< 6 mg/l	

The organic portion of this preparation is expected to be readily biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, none of the substances in this product are hazardous.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods.

Limitations: no more than required to produce intended technical effect.

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 062430
This product is acceptable as a water conditioner (G2) for the treatment of entire potable water systems at concentrations not to exceed 10 ppm calculated as phosphate ion in and around food processing areas. This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the corrosion and scale control category. The official name is "Miscellaneous Corrosion Chemicals." Maximum product application dosage is : 40 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 06/09/2011
Version Number : 1.12

Green naphtha

Safety Data Sheet

According to Regulation (EU) No. 830/2015

Revision date: 06/05/2016 **Version: 1.2**

Supersedes: 20/11/2015

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

1.1. Product identifier

Product form	: Substance is complex UVCB. (UVCB)
Trade name	: Green naphtha
Chemical name	: Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction)
EC index no	: N/A
EC no	: 940-595-2
CAS No	: N/A
REACH registration No	: 01-2120047498-46
Product code	: 1914
Type of product	: Mixture of hydrocarbons
Synonyms	: GREEN NAFTA EXPORT (SAP 1919)
Product group	: Trade product

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

1.2.1. Relevant identified uses

Main use category	: Industrial use,Professional use,Consumer use
Use of the substance/mixture	: Fuels
Function or use category	: Fuels

Title	Use descriptors
ES01 - Manufacture of substance (1)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15, ERC1, ERC4, ESVOC SPERC 1.1.v1, (ENV), (ERC)
ES02 - Distribution of substance	SU3, PROC1, PROC8a, PROC8b, PROC15, ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SPERC 1.1b.v1
ES03 - Formulation & (re)packing of substances and mixtures	SU3, SU10, PROC1, PROC8a, PROC8b, ERC2, ESVOC SPERC 2.2.v1
ES04 - Use as a fuel	SU3, PROC1, PROC8a, PROC8b, ERC7, ESVOC SPERC 7.12a.v1
ES05 - Use as a fuel	SU22, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, ERC9a, ERC9b, ESVOC SPERC 9.12b.v1
ES06 - Use as a fuel	SU21, PC13, ERC9a, ERC9b, ESVOC SPERC 9.12c.v1

Full text of use descriptors: see section 16

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ENI S.p.A.
P.le E. Mattei 1 - 00144 ROMA Italy
Tel (+39) 06 59821
www.eni.com

Contact:
Refining & Marketing and Chemicals
Via Laurentina 449 00142 ROMA Italy
Tel (+39) 06 59881 Fax (+39) 06 59885700

Competent person responsible for the Safety Data Sheet (Reg. EC nr. 1907/2006): SDSInfo@eni.com

1.4. Emergency telephone number

Emergency number : CNIT +39 0382 24444 (24h) (IT + EN)

Poison centre (UK):
National Poisons Information Service Edinburgh (24h)
(+44) 844 892 0111
0870 600 6266 (UK only)
(Source: UN-WHO)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [EU-GHS / CLP]

Flam. Liq. 1	H224
Skin Irrit. 2	H315
Repr. 2	H361f
STOT SE 3	H336
Asp. Tox. 1	H304
Aquatic Chronic 2	H411

Full text of classification categories and H statements : see section 16

Adverse physicochemical, human health and environmental effects

Extremely flammable. Irritant to skin. High concentration of vapours may induce: headache, nausea, dizziness. Aspiration into lungs can cause a chemical pneumonia. Suspected of damaging fertility. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. For specific information about the toxicological/ecotoxicological properties and classification of this product, see Sect. 11 and/or Sect. 12.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS07 GHS08 GHS09

CLP Signal word : Danger

Hazard statements (CLP) : H224 - Extremely flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H361f - Suspected of damaging fertility
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (CLP) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed
P241 - Use explosion-proof electrical/ventilating/lighting/... equipment
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P264 - Wash ... thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves, eye protection, Safety overall
P301+P310 - IF SWALLOWED: immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P321 - Specific treatment (see ... on this label)
P331 - Do NOT induce vomiting
P332+P313 - If skin irritation occurs: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash before reuse.
P370+P378 - In case of fire: Use ... to extinguish
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to according to national or local regulations

Child-resistant fastening : No
Tactile warning : No

Other:

General advice : (Not applicable - Classified as dangerous according to (EC) No 1272/2008)

2.3. Other hazards (not relevant for classification)

Physical/chemical : Vapours may form flammable and explosive mixture with air,The vapours are heavier than air and will accumulate in closed areas and at ground level, with backfire hazard.,This material can accumulate static charge by flow or agitation and can be ignited by static discharge.

Health : Contact with hot product or vapours may cause burns.

Environment : None.

Contaminants (air contaminants or other substances) : None.

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

SECTION 3: Composition/information on ingredients

3.1. Substance

Composition - General information : Mixture of hydrocarbons with carbon numbers predominantly in the range C3-C12 and boiling range approximately in the range 30 °C - 210 °C.

Hazardous constituents and/or with relevant occupational exposure limits. : The substances identified as "CONSTITUENT" are chemical compounds that are typically present in a UVCB substance. Their presence may be relevant for hazard classification, or other health / environmental reasons (i.e. OELs).,All these chemical compounds are not added deliberately as such.,Quantities are variable and not predetermined.,Hazard classification of this material is based on the worst possible case.

Substance type : UVCB
Chemical name : Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction)
CAS No : N/A

EC no : 940-595-2
EC index no : N/A

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [EU-GHS / CLP]
n-Hexane (CONSTITUENT)	(CAS No) 110-54-3 (EC no) 203-777-6 (EC index no) 601-037-00-0 (REACH-no) 01-2119480412-44	>= 3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361f STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : In case of spontaneous vomiting, transport the victim to a hospital, to verify the possibility that the product has been aspired into the lungs. Seek medical attention in all cases of serious burns.

First-aid measures after inhalation : Remove to fresh air, keep the casualty warm and at rest. If casualty is unconscious and not breathing: ensure that there is no obstruction to breathing and give artificial respiration by trained personnel. If necessary, give external cardiac massage and obtain medical advice. If the casualty is breathing: Place in the recovery position. Administer oxygen if necessary.

First-aid measures after skin contact : Remove contaminated clothing, contaminated footwear and dispose of safely. Wash with plenty of soap and water. If inflammation or irritation persists, seek medical advice. In case of contact with hot product, cool affected part with plenty of cold water, and cover with gauze or clean cloth. Call a doctor or bring to an hospital. Do not use salves or ointments, unless directed by doctor. Body hypothermia must be avoided. Do not put ice on the burn. When using high-pressure equipment, injection of product can occur. Send the casualty immediately to hospital. Do not wait for symptoms to develop.

First-aid measures after eye contact : Rinse eyes thoroughly for at least 15 minutes. Keep eyelids well apart. Remove contact lenses, if present and easy to do so. If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.

First-aid measures after ingestion : Do not induce vomiting to avoid aspiration into the lungs. If the person is conscious, rinse mouth with water without swallowing. Keep at rest. Call for medical assistance or bring to an hospital. If the casualty is inconscious, place in the recovery position. In case of spontaneous vomiting, keep head low, to avoid the risk of aspiration into the lungs. Do not give anything by mouth to an unconscious person.

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

Symptoms / injuries (general indications) : Irritant to skin. Aspiration into lungs can cause a chemical pneumonia. Suspected of damaging fertility. Suspected of damaging the unborn child.

Symptoms/injuries after inhalation : Overexposure to vapours (e.g. through prolonged use in confined, insufficiently ventilated spaces) may cause irritation to airways, nausea and dizziness.

Symptoms/injuries after skin contact : Prolonged and repeated skin contact may cause reddening, irritation and dermatitis, due to a defatting effect.

Symptoms/injuries after eye contact : May cause slight irritation.

Symptoms/injuries after ingestion : Few or no symptoms expected. If any, nausea and diarrhoea might occur.

Symptoms/injuries upon intravenous administration : No information available.

Chronic symptoms : Suspected of damaging fertility.

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

In case of ingestion, always assume that aspiration has occurred. The casualty should be sent immediately to hospital. Do not wait for symptoms to develop. If necessary, drain stomach by gastric lavage ONLY under qualified medical supervision.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Small-size fires: carbon dioxide, dry chemicals, foam, sand or earth. Large fires: foam or water fog (mist). These means should be used by trained personnel only. Other extinguishing gases (according to regulations).

Unsuitable extinguishing media : Do not use water jets. They could cause splattering, and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Extremely flammable.

Explosion hazard : Vapours are heavier than air, spread along floors and form explosive mixtures with air. They may be ignited by heat, sparks, static electricity or flames.

Combustion products : Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, NOx (harmful/toxic gases).,Oxygenated compounds (aldehydes, etc.),Solid particulate

5.3. Advice for firefighters

Firefighting instructions : Shut off source of product, if possible. If possible, move containers and drums away from danger area. Spilled product which is not burning should be covered with sand or foam. Use water sprays to cool containers and surfaces exposed to the flames. If the fire cannot be controlled, evacuate area.

Special protective equipment for firefighters : Personal protection equipment for firefighters (see also sect. 8). Self-contained breathing apparatus.

Other information : In case of fire, do not discharge residual product, waste materials and runoff water: collect separately and use a proper treatment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop or contain leak at the source, if safe to do so. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares). Use only non-sparking tools. Avoid direct contact with released material. Keep upwind.

6.1.1. For non-emergency personnel

Protective equipment : See Section 8.

Emergency procedures : Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency.

6.1.2. For emergency responders

Protective equipment : Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and antistatic material. Work gloves (preferably gauntlets) providing adequate chemical resistance. Gloves made of PVA are not water-resistant, and are not suitable for emergency use. Antistatic non-skid safety shoes or boots, chemical resistant. Work helmet. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection: a half or full-face respirator with filter(s) for organic vapours (AX), or a Self-contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure.

Emergency procedures : Notify local authorities according to relevant regulations. In case of large spillages, alert occupants in downwind areas.

6.2. Environmental precautions

Do not let the product accumulate in confined or underground spaces. Do not let the product flow into sewers or water courses, or in any way contaminate the environment. In case of contamination of environment compartments (soil, subsoil, surface or underground waters), remove contaminated soil when possible, and in any case treat all involved compartments in accordance with local regulations. The site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

6.3. Methods and material for containment and cleaning up

For containment : Soil. Contain spilled liquid with sand, earth or other suitable absorbents (non-flammable). Recover free liquid and waste materials in suitable waterproof and oil-resistant containers. Clean contaminated area. Dispose of according to local regulations. Large spillages may be cautiously covered with foam, if available, to limit fire risk. Do not use direct jets. When inside buildings or confined spaces, ensure adequate ventilation. Water: In case of small spillages in closed waters (i.e. ports),. Confine the spillage. Remove from surface by suitable absorbents. Collect recovered product and other waste materials in suitable waterproof, oil resistant containers. Recover or dispose of according to local regulations. If possible, large spillages in open waters should be contained with floating barriers or other suitable mechanical means. If this is not possible: Isolate the area and prevent fire/explosion hazard for ships and other structures, taking into account wind direction and speed, until the product is completely dispersed. Do not use solvents or dispersants, unless specifically advised by an expert, and, if required, approved by local authorities.

Other information : Recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. Local regulations may also prescribe or limit actions to be taken. For this reason, local experts should be consulted when necessary.

6.4. Reference to other sections

See Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Obtain special instructions before use. Ensure that all relevant regulations regarding handling and storage facilities of flammable products are followed. Do not use electrical equipment (mobile phones etc.) not approved for use, according to the risk rating of the area. Do not use compressed air for filling, discharging, or handling operations. Keep away from heat/sparks/open flames/hot surfaces. Use and store only outdoors or in a well-ventilated area. During transfer and mixing operations, ensure that all equipment is correctly grounded. Avoid the build-up of electric charges. Use only bottom loading of tankers, in compliance with European legislation. Before entering storage tanks and commencing any operation in a confined area (e.g. tunnels), carry out an adequate clean-up, and check the atmosphere for oxygen content and flammability. Emptied containers can contain combustible product residues. Do not cut, weld, drill, burn or incinerate empty containers or drums, unless they have been drained and cleaned.

Handling temperature : ≤ 55 °C

Hygiene measures : Use adequate personal protective equipment as needed. Do not breathe fume/ mist/ vapours. Avoid contact with skin. Wash the hands thoroughly after handling. Do not ingest. Do not smoke. Contaminated materials should not be allowed to accumulate in the workplaces and should never be kept inside the pockets. Do not re-use clothes, if they are still contaminated.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry, well ventilated area. Do not smoke. Keep away from open flames, hot surfaces and sources of ignition. Vapours are heavier than air and spread above ground. Beware of accumulation in pits and confined spaces.

Incompatible products : Keep away from: strong oxidants.

Incompatible materials : Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

Storage temperature : ≤ 55 °C

Storage area : Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Storage areas/installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.

Packages and containers:	: If the product is supplied in containers: Keep containers tightly closed and properly labelled. Keep only in the original container or in a suitable container for this kind of product. Store away from direct sunlight or other heat sources. Light hydrocarbon vapours can build up in the headspace of containers. Open slowly in order to control possible pressure release. Empty containers may contain flammable product residues. Do not weld, solder, drill, cut or incinerate empty containers, unless they have been properly cleaned.
Packaging materials	: For containers, or container linings use materials specifically approved for use with this product. Recommended materials for containers, or container linings use mild steel, stainless steel. Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

7.3. Specific end use(s)

For more information regarding protective equipment and operational conditions see Exposure scenarios.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)		
Belgium	Limit value (ppm)	300 ppm
Belgium	Short time value (ppm)	500 ppm
The Netherlands	MAC TGG 8h (mg/m³)	240 mg/m³
The Netherlands	MAC TGG 15 min (mg/m³)	480 mg/m³
Spain	VLA-ED (ppm)	300 ppm
Canada (Quebec)	VECD (ppm)	300 ppm
Canada (Quebec)	VEMP (ppm)	500 ppm
USA - ACGIH	ACGIH TLV®-TWA (ppm)	300 ppm
USA - ACGIH	ACGIH TLV®-STEL (ppm)	500 ppm

n-Hexane (110-54-3)		
EU	IOELV TWA (ppm)	20 ppm Skin
Austria	MAK (ppm)	20 ppm
Austria	MAK Short time value (ppm)	80 ppm
Belgium	Limit value (ppm)	20 ppm
Denmark	Grænseværdi (langvarig) (ppm)	25 ppm
Denmark	Grænseværdi (kortvarig) (ppm)	50 ppm
France	VLE (ppm)	20 ppm
Germany	TRGS 900 Occupational exposure limit value (ppm)	50 ppm
Germany	TRGS 900 Limitation of exposure peaks (ppm)	400 ppm
Hungary	CK-érték	2000 mg/m³
Hungary	MK-érték	8000 mg/m³
Italy	OEL TWA (mg/m³)	72 mg/m³
Italy	OEL TWA (ppm)	20 ppm
The Netherlands	MAC TGG 8h (mg/m³)	72 mg/m³
The Netherlands	MAC TGG 15 min (mg/m³)	144 mg/m³
Poland	NDSCh (mg/m³)	72 mg/m³
Spain	VLA-ED (ppm)	20 ppm
Sweden	Nivågränsvärde (NVG) (ppm)	25 ppm
Sweden	Kortidsvärde (KTV) (ppm)	50 ppm
United Kingdom	WEL TWA (ppm)	20 ppm
Switzerland	VME (ppm)	50 ppm
Switzerland	VLE (ppm)	400 ppm
Canada (Quebec)	VECD (ppm)	50 ppm
USA - ACGIH	ACGIH TLV®-TWA (mg/m³)	180 mg/m³ Skin
USA - ACGIH	ACGIH TLV®-TWA (ppm)	50 ppm Skin
USA - NIOSH	NIOSH REL (TWA) (ppm)	50 ppm

USA - OSHA	OSHA PEL (TWA) (ppm)	500 ppm

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	1500 mg/m³ (DNEL, 15 min) (Read-across)
Acute - local effects, inhalation	1100 mg/m³ (DNEL, 15 min) (Read-across)
Long-term - systemic effects, inhalation	840 mg/m³/day (DNEL, 8h) (Read-across)
DNEL/DMEL (General population)	
Acute - systemic effects, inhalation	1200 mg/m³ (DNEL, 15 min) (Read-across)
Acute - local effects, inhalation	640 mg/m³ (DNEL, 15 min) (Read-across)
Long-term - systemic effects, inhalation	≥ 180 mg/m³/day (DNEL, 8 h) (Read-across)

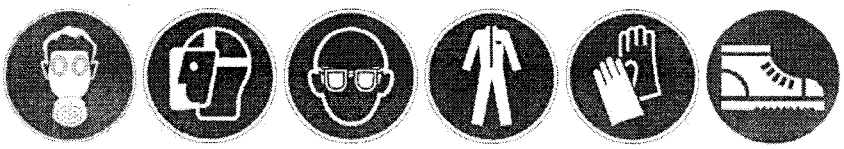
Monitoring methods : Monitoring procedures should be chosen according to the indications set by national authorities or labour contracts.,Refer to relevant legislation and in any case to the good practice of industrial hygiene.

Note : The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accord with specific guidance within the European REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a governmental regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

8.2. Exposure controls

Appropriate engineering controls : Before entering storage tanks and commencing any operation in a confined area (e.g. tunnels), carry out an adequate clean-up, and check the atmosphere for oxygen content and flammability.

Personal protective equipment (for industrial or professional use) : Gas mask (for conditions of use, see: "Respiratory protection"). Face shield. Safety glasses. Protective clothing. Gloves. Safety shoes or boots.



Hand protection : When there is a risk of contact with the skin, use hydrocarbon-resistant, felt-lined gloves. Adequate materials: nitrile (NBR), with a protection index ≥ 5 (permeation time ≥ 240 mins). Use gloves respecting all the conditions and within the limits set by the manufacturer. Replace gloves immediately in case of cuts, holes or other signs of damages or degradation. If necessary, refer to the EN 374 standard.

Eye protection : When there is a risk of contact with the eyes, use safety goggles or other means of protection (face shield). If necessary, refer to national standards or to the EN 166 standard.

Skin and body protection : Long-sleeved overalls. If necessary, refer to the EN 340 and related standards, for definition of characteristics and performance according to the risk rating of the area. Antistatic non-skid safety shoes or boots, chemical resistant.

Respiratory protection : Open or well ventilated spaces; if the product is handled without adequate containment means for the vapours: use full or half-face masks with filter for hydrocarbon vapours (AX). (EN 136/140/145). Closed or confined areas (e.g. tank interiors): the use of protection measures for airways (masks or self-contained breathing apparatus), must be assessed according to the specific activity, as well as level and duration of predicted exposure. (EN 136/140/145)

Thermal hazard protection : None in normal use conditions.

Environmental exposure controls : Do not discharge the product into the environment. Storage areas/installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills. Prevent discharge of undissolved substance to or recover from onsite wastewater. Onsite wastewater treatment required. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Consumer exposure controls	: No special requirements necessary, if handled at room temperature.

8.3. Hygiene measures

General protective and hygienic measures	: Avoid contact with skin and eyes,Do not breathe vapours or mists.,Do not clean hands with dirty or oil-soaked rags.,Do not keep dirty rags in the overall pockets.,Do not drink, eat or smoke with dirty hands.,Wash hands with water and mild soap, do not use solvents or other irritant products which have a defatting effect on the skin.,Do not re-use clothes, if they are still contaminated.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid, bright & clear.
Molecular mass	: Not applicable (UVCB)
Colour	: Colourless / pale yellow.
Odour	: Petroleum-like.
Odour threshold	: No data available
pH	: Not applicable.
Relative evaporation rate (butylacetate=1)	: not determined
Melting point	: ≤ -60 °C
Freezing point	: Not applicable
Boiling point	: ≥ 25 °C EN ISO 3405
Flash point	: ≤ -40 °C EN ISO 13736
Critical temperature	: Not applicable for mixtures
Self ignition temperature	: ≥ 280 °C (DIN 51794)
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: ≥ 4 kPa
Critical pressure	: Not applicable
Relative vapour density at 20 °C	: > 1 (according to composition)
Relative density	: No data available
Density	: 620 - 880 kg/m³ EN ISO 12185
Solubility	: Water: Immiscible and insoluble Organic solvent:Completely soluble
Log Pow	: No data available
Viscosity, kinematic	: ≤ 1 mm²/s (37,8 °C) (ASTM D 445)
Viscosity, dynamic	: No data available
Explosive properties	: None (according to composition).
Oxidising properties	: None (according to composition).
Explosive limits	: 1,4 - 7,6 vol %

9.2. Other information

VOC content	: = 100 % EU, CH

The above data (9.1 - 9.2) are typical values and do not constitute a specification.

SECTION 10: Stability and reactivity

10.1. Reactivity

This mixture does not offer any further hazard for reactivity, except what is reported in the following paragraphs.

10.2. Chemical stability

Stable product, according to its intrinsic properties.

10.3. Possibility of hazardous reactions

None (in normal conditions of storage and handling). Contact with strong oxidizers (peroxides, chromates, etc.) may cause a fire hazard. A mixture with nitrates or other strong oxidisers (e.g. chlorates, perchlorates, liquid oxygen) may create an explosive mass. Sensitivity to heat, friction or shock cannot be assessed in advance.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Avoid the build-up of electrostatic charge. No smoking.

10.5. Incompatible materials

Strong oxidants.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
LD50 oral rat	≥ 5000 mg/kg bodyweight (OECD 401) (read-across)
LD50 dermal rabbit	≥ 2000 mg/kg bodyweight (OECD 402) (read-across)
LC50 inhalation rat (mg/l)	≥ 5 mg/l/4h (OECD 403) (read-across)

n-Hexane (110-54-3)	
LD50 oral rat	= 24 ml/kg (OECD 401)
LD50 dermal rabbit	= 3000 mg/kg (OECD 402)
LC50 inhalation rat (mg/l)	= 17600 mg/m³ (OECD 403)
LC50 inhalation rat (ppm)	> 5000 ppm

Skin corrosion/irritation : Causes skin irritation.
Prolonged and repeated skin contact may cause reddening, irritation and dermatitis, due to a defatting effect.
pH: Not applicable.

Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)
(OECD 405) (read-across)
pH: Not applicable.

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
(OECD 406) (read-across)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Mutagenicity tests are negative
(OECD 471 - Ames test) (read-across)
This product does not contain any significant amounts of substances classified as mutagenic by the EU (in any case < 0.1 % wt)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity tests results are negative.
(OECD 451) (read-across)

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
NOAEL (chronic,oral, animal/male,2 years)	50 µl/day No-observed-effect level (Read-across)

n-Hexane (110-54-3)	
NOAEL (chronic,oral, animal/male,2 years)	9016 ppm (NOAEC) (API, 1995)

Reproductive toxicity : Suspected of damaging fertility.
Tests results are negative.
(OECD 414) (read-across)
(OECD 421) (read-across)
According to the UE criteria, the presence of n-hexane in an amount greater than 3 %wt causes this product to be classified as Repr. 2, H 361f [DSD: Repro. cat. 3, R62]

Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.

This product is very volatile, also at ambient temperature. Overexposure to vapours (e.g. through prolonged use in confined insufficiently ventilated spaces) may cause irritation to airways, dizziness, nausea and loss of conscience

n-Hexane (110-54-3)	
LOAEC (inhalation, rat, vapour)	> 5000 mg/l/4h
NOAEL (oral,rat)	568 mg/kg bodyweight

Specific target organ toxicity (repeated exposure) : Not classified (Conclusive but not sufficient for classification)

According to the available experimental results for UVCB naphtha fractions, the calculated STOT RE effects for single constituents (benzene, toluene, n-hexane) are considered "Not applicable" (CONCAWE, 2010).

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
NOAEC (inhalation,rat, vapour, 90 days)	10000 mg/m³ OECD 413. (Read-across)
NOAEL (subacute,oral, animal/male,28 days)	≤ 500 mg/kg bodyweight (Read-across)

n-Hexane (110-54-3)	
LOAEC (inhalation, rat, vapour, 90 days)	3000 ppm

Aspiration hazard : May be fatal if swallowed and enters airways.

For all low-viscosity petroleum products (less than 20,5 mm2/s at 40 °C), there is the risk of aspiration into the lungs. This may occur directly after ingestion, or subsequently in case of vomiting (spontaneous or induced).

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
Viscosity, kinematic	≤ 1 mm²/s (37,8 °C) (ASTM D 445)

Potential Adverse human health effects and symptoms : Prolonged and repeated skin contact may cause reddening, irritation and dermatitis, due to a defatting effect. Contact with eyes may cause temporary reddening and irritation. High concentration of vapours may induce: headache, nausea, dizziness. May cause cancer. May damage fertility or the unborn child.

Other information : None.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : According to the components, and by comparison with other products of the same type and composition, it is expected that this product has a toxicity for aquatic organisms between 1 and 10 mg/l, and must be regarded as Dangerous to the environment. An uncontrolled release to the environment may produce a contamination of different environmental compartments (air, soil, underground, surface water bodies, aquifers). Handle according to general working hygiene practices to avoid pollution and release into the environment.

Ecology - air : In case of emission to the environment, the constituents of the product will disperse in the atmosphere, where they undergo quick degradation by hydroxyl radicals. This process may promote the creation of ozone by photochemical reactions, but is dependent on interactions with other pollutants, and weather conditions.

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
LC50 fish 1	1 - 10 mg/l (48 h) (read-across)
LC50 fish 2	1 - 10 mg/l (LL50, 96 h) (read-across)
EC50 Daphnia 1	1 - 10 mg/l (EL50, 48 h) (read-across)
EC50 other aquatic organisms 2	10 - 20 mg/l (EC50, 48 h) (Tetrahymena Pyriformis) (read-across)
EC50 72h Algae [mg/l] (1)	1 - 10 mg/l (EL50, 72 h) (Selenastrum capricornutum) (read-across)
NOEC (chronic)	1 - 10 mg/l NOELR, 21 d (Pimephales promelas) (read-across)

n-Hexane (110-54-3)	
LC50 fish 1	12,51 mg/l LL50, 96 h (Calculated data, QSAR, CONCAWE 2009).
EC50 Daphnia 1	21,85 mg/l (EL50, 48h, QSAR, CONCAWE 2009).
LC50 fish 2	≥ 1 mg/l Limit value, 48 h, (Oryzias latipes [killifish])
NOEC (acute)	2,077 mg/l (NOELR, 72h, Pseudokirchnerella subcapitata, QSAR, CONCAWE 2009)
NOEC (chronic)	4,88 mg/l (NOELR, 21d, Daphnia magna, QSAR, CONCAWE 2009)

12.2. Persistence and degradability

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
Persistence and degradability	The product should be considered as "Not persistent" in the environment, according to the REACH Annex XIII criteria (point 1.1).
Biodegradation	The test methods for this endpoint are not applicable to UVCB substances

n-Hexane (110-54-3)	
Persistence and degradability	The product should be considered as "Not persistent" in the environment, according to the REACH Annex XIII criteria (point 1.1).
Biodegradation	> 80 % 28 d (Read across)

12.3. Bioaccumulative potential

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
Bioaccumulative potential	The test methods for this endpoint are not applicable to UVCB substances.

n-Hexane (110-54-3)	
BCF fish 1	501,1 (Calculated data, QSAR).
Log Kow	3,3 - 3,9

12.4. Mobility in soil

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)	
Mobility in soil	Not applicable (UVCB)

12.5. Results of PBT and vPvB assessment

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) (N/A)
This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

Component	
n-Hexane (110-54-3)	This substance/mixture does not meet the PBT criteria of REACH, annex XIII. This substance/mixture does not meet the vPvB criteria of REACH, annex XIII. This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Other adverse effects

Other adverse effects : None.

Additional information : This product has no specific properties for inhibition of bacterial activity. In any case, wastewater containing this product should be treated in plants that are suited for the specific purpose.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Do not dispose of the product, either new or used, by discharging into sewers, tunnels, lakes or water courses. Deliver to a qualified official collector. Dispose of empty containers and wastes safely.

Sewage disposal recommendations : Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Dispose of in a safe manner in accordance with local/national regulations.

Waste disposal recommendations : European Waste Catalogue code(s) (Decision 2001/118/CE): 13 07 02* ("Petrol"). This EWC code is only a general indication, and takes into account the original composition of the product and its intended use. The user has the responsibility of choosing the right EWC code, considering the actual use of the product, alterations and contaminations.

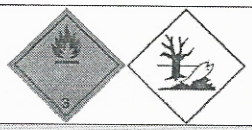
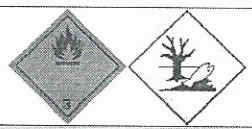
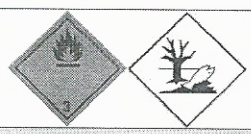
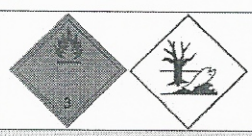
Additional information : Do not cut, weld, drill, burn or incinerate empty containers or drums, unless they have been cleaned, and declared safe. Empty containers may contain flammable product residues. Dispose of empty, not cleaned containers safely, according to local regulations.

Ecology - waste materials : The product as it is does not contain halogenated substances.

EURAL code (EWC) : 13 07 02* - petrol

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3295	3295	3295	3295	3295
14.2. UN proper shipping name				
HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.
Transport document description				
UN 3295 HYDROCARBONS, LIQUID, N.O.S. (Renewable hydrocarbons - naphtha fraction), 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 3295 HYDROCARBONS, LIQUID, N.O.S., 3, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS			
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
Other information : No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (UN)	: F1
Special provision (ADR)	: 640D
Limited quantities (ADR)	: 1L
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P001, IBC02, R001
Mixed packing provisions (ADR)	: MP19
Mixed Portable tank and bulk container instructions (ADR)	: T7
Mixed Portable tank and bulk container special provisions (ADR)	: TP1, TP8, TP28
ADR tank codes (ADR)	: LGBF
Vehicle for tank carriage	: FL
Transport category (ADR)	: 2
Special provisions for carriage - Operation (ADR)	: S2, S20
Hazard identification number (Kemler No.)	: 33
Orange plates	: 
Tunnel restriction code	: D/E
EAC code	: 3YE

- Transport by sea

Transport regulations (IMDG)	: Subject to the provisions
Limited quantities (IMDG)	: 1 L
Limited quantities (IMDG)	: 1 L

Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP8, TP28
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: B

- Air transport

Transport regulations (IATA)	: Subject to the provisions
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y341
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 353
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 364
CAO max net quantity (IATA)	: 60L
Special provision (IATA)	: A3, A224
ERG code (IATA)	: 3H

- Inland waterway transport

Classification code (ADN)	: F1
Special provision (ADN)	: 64D
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1

- Rail transport

Transport regulations (RID)	: Subject to the provisions
Classification code (RID)	: F1
Special provision (RID)	: 640D
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP1, TP8, TP28
Tank codes for RID tanks (RID)	: LGBF
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE7
Hazard identification number (RID)	: 33

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IBC product name	: This product is not listed in the ANNEX II of MARPOL 73/78. However, due its composition and properties, it must be considered as an ANNEX II cargo [Noxious liquid, F, (4) n.o.s. (trade name "Green Naphtha") ST2, Cat. X]
Ship type	: Type 2
Pollutant category	: X

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Authorisations and/or restrictions on use (Annex XVII):

3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) - n-Hexane
3.a. Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) - n-Hexane
3.b. Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) - n-Hexane
3.c. Hazard class 4.1	Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) - n-Hexane
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) - n-Hexane

Renewable hydrocarbons of vegetable oil and/or animal fat origin (naphtha type fraction) is not on the REACH Candidate List

No ingredients are included in the REACH Candidate list (> 0,1 % m/m).

Contains no REACH Annex XIV substances.

Relevant EU Legislation : 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). (et sequens).
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 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (et sequens).
Directives 89/391/CEE, 89/654/CEE, 89/655/CEE, 89/656/CEE, 90/269/CEE, 90/270/CEE, 90/394/CEE, 90/679/CEE, 93/88/CEE, 95/63/CE, 97/42/CE, 98/24/CE, 99/38/CE, 99/92/CE, 2001/45/CE, 2003/10/CE, 2003/18/CE (Health and safety on the workplace)
Directive 98/24/EC (protection of the health and safety of workers from the risks related to chemical agents at work).
Directive 2012/18/CE (Control of major-accident hazards involving dangerous substances). This product, for its composition or characteristics, corresponds to the criteria which are listed in Annex I. Refer to the Directive (or corresponding national regulations) for connected obligations, according to the amount of product present in a specific site.
Directive 2004/42/CE (Limitation of emissions of Volatile Organic Compounds)

VOC content : = 100 % EU, CH

15.1.2. National regulations

National adoption of EU Directives concerning health and safety on the workplace.
National laws on classification and labeling of dangerous substances/preparations (Adoption of Directive 67/548/CE and subsequent Adaptations to Technical Progress - ATP, and Directive 1999/45/CE).
National adoption of EU Directives concerning control of major-accident hazards involving dangerous substances (2012/18/CE). (annex I, part 1)
Relevant national laws on prevention of water pollution.
Relevant national laws on protection of the health of pregnant workers (National adoption of Dir. 92/85/EEC).
National adoption of Directives 75/439/CEE - 87/101/CEE concerning disposal of used oils.

France

Maladies professionelles (F) : RG 59 - Intoxications professionnelles par l'hexane

Germany

VwVwS Annex reference	: Water hazard class (WGK) (D) 3, severe hazard to waters
WGK remark	: Classification in compliance with Verwaltungsvorschriftwassergefährdender Stoffe (VwVwS) of 17 May 1999
VbF class (D)	: A I - Liquids with a flashpoint below 21°C
Storage class (LGK) (D)	: LGK 3A - Flammable liquid materials (Flashpoint < 55 °C)
Employment restrictions	: Employment prohibitions or restrictions on the protection of young people at work according to § 22 JArbSchG in the case of formation of hazardous substances have to be observed. Employment prohibitions and restrictions according to § 4 and § 5 MuSchArbV have to be observed.
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV	: Listed in the 12. BImSchV (Annex I) under: 13.1 Quantity threshold for operational area under § 1 para. 1 - Sentence 1: 2500000 kg - Sentence 2: 25000000 kg
Other information, restrictions and prohibition regulations	: TRGS 400: Risk Assessment for Activities involving Hazardous Substances TRGS 401: Risks resulting from skin contact - identification, assessment, measures TRGS 402: Identification and Assessment of the Risks from Activities involving Hazardous Substances: Inhalation Exposure TRGS 510: Storage of hazardous substances in non-stationary containers TRGS 555: Working instruction and information for workers TRGS 800: Fire protection measures TRGS 900: Occupational Exposure Limits

The Netherlands

Waterbezwaarlijkheid	: 6 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Saneringsinspanningen	: A - In principe niet lozen; zo ja, dan toepassen van beste bestaande technieken

Denmark

Classification remarks	: Emergency management guidelines for the storage of flammable liquids must be followed
Recommendations Danish Regulation	: Young people under 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with it

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Indication of changes:
Modification according to Regulation (EC) 830/2015. Synonyms.

Abbreviations and acronyms:

	Complete text of the phrases H and R quoted in this Safety Data Sheet. These phrases are reported here for information only, and MAY NOT correspond to the classification of the product.

N/A = Not applicable.
N/D = Not available
ACGIH = American Conference of Governmental Industrial Hygienists
API = American Petroleum Institute
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CSR = Chemical Safety Report
DNEL = Derived No Effect Level
DMEL = Derived Minimum Effect Level
EC50 = Effective Concentration, 50%
EL50 = Effective Loading, 50 %
EPA = Environmental Protection Agency
IC50 = Inhibition Concentration, 50%
LC50 = Lethal Concentration, 50%
LD50 = Lethal Dose, 50%
LL50 = Lethal Loading, 50%
LOAEL = Low Observed Adverse Effects Level
NOEL = No Observed Effects Level
NOAEL = No Observed Adverse Effects Level
OECD = Organization for Economic Cooperation and Development
PNEC = Predicted No-Effect Concentration
PBT = Persistent, Bioaccumulative, Toxic
STOT = Single Target Organ Toxicity
(STOT) RE = (Single Target Organ Toxicity) Repeated exposure
(STOT) SE = (Single Target Organ Toxicity) Single exposure
TLV®TWA = Threshold Limit Value® – Time-Weighted Average
TLV®STEL = Threshold Limit Value® – Short Term Exposure Limit
UVCB = Substance of Unknown or Variable composition, Complex reaction products or Biological materials
vPvB = very Persistent, very Bioaccumulative
WAF = Water Accommodated Fraction

Data sources : Chemical safety assessment.

Training advice : Provide adequate training to professional operators for the use of PPEs, according to the information contained in this Safety Data Sheet.

Other information : Do not use the product for any purposes that have not been advised by the manufacturer.

Full text of H- and EUH-phrases:

Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Flam. Liq. 1	Flammable liquids, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H224	Extremely flammable liquid and vapour
H225	Highly flammable liquid and vapour
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H336	May cause drowsiness or dizziness
H361f	Suspected of damaging fertility
H373	May cause damage to organs through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects
(ENV)	Qualitative Assessment for Environment.
(ERC)	Release fractions defined by ERC
ERC1	Manufacture of substances
ERC2	Formulation of preparations
ERC3	Formulation in materials
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC5	Industrial use resulting in inclusion into or onto a matrix
ERC6a	Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b	Industrial use of reactive processing aids

ERC6c	Industrial use of monomers for manufacture of thermo-plastics
ERC6d	Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
ERC7	Industrial use of substances in closed systems
ERC9a	Wide dispersive indoor use of substances in closed systems
ERC9b	Wide dispersive outdoor use of substances in closed systems
ESVOC SPERC 1.1.v1	Manufacture of substances: Industrial (SU8, SU9)
ESVOC SPERC 1.1b.v1	Distribution: Industrial (SU3)
ESVOC SPERC 2.2.v1	Formulation & (re)packing of substances and mixtures: Industrial (SU10)
ESVOC SPERC 7.12a.v1	Use as a fuel: Industrial (SU3)
ESVOC SPERC 9.12b.v1	Use as a fuel: Professional (SU 22)
ESVOC SPERC 9.12c.v1	Use as a fuel: Consumer (SU21)
PC13	Fuels
PROC1	Use in closed process, no likelihood of exposure (no sampling)
PROC15	Use as laboratory reagent
PROC16	Using material as fuel sources, limited exposure to unburned product to be expected
PROC2	Use in closed, continuous process with occasional controlled exposure (with sampling)
PROC3	Use in closed batch process (synthesis or formulation) (with sampling)
PROC8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
SU10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU21	Consumer uses: Private households (= general public = consumers)
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU9	Manufacture of fine chemicals

SDS EU (REACH Annex II) eni 2015

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

Ammonia solution 25%

Version number: GHS 5.0
Replaces version of: 2022-05-16 (GHS 4)

Revision: 2024-03-07

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

1.1 Product identifier

Trade name	**Ammonia solution 25%**
CAS number	1336-21-6
Alternative name(s)	Ammonia, aqueous solution, ammonium hydroxide
Article number	A0023969

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 acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	1B	Skin Corr. 1B	H314
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	3	STOT SE 3	H335
4.1A	hazardous to the aquatic environment - acute hazard	1	Aquatic Acute 1	H400

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

- Signal word: danger

- Pictograms

GHS05, GHS07, GHS09

- Hazard statements

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

- 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.
P310	Immediately call a POISON CENTER/doctor.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

- Hazardous ingredients for labelling: ammonia, anhydrous

2.3 Other hazards

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

Identifiers

CAS No	1336-21-6
EC No	215-647-6
Index No (GB CLP)	007-001-01-2
Molecular formula	H5NO
Molar mass	35.05 $^{g}/_{mol}$

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
ammonia, anhydrous	CAS No 7664-41-7 EC No 231-635-3 Index No 007-001-00-5	25 – < 50	Flam. Gas 1B / H221 Press. Gas C / H280 Acute Tox. 3 / H331 Skin Corr. 1 / H314 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411	

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
ammonia, anhydrous	-	M-factor (acute) = 10	>700 $^{ppmV}/_{4h}$	inhalation: gas

Remarks

For full text of abbreviations: see SECTION 16

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.

Following skin contact

Wash with plenty of soap and water.

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 spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO2)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

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. 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

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

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.

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

Control of effects

Protect against external exposure, such as

frost

- 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/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
EU	ammonia, anhydrous	7664-41-7	IOELV	20	14	50	36				2000/39/EC
GB	ammonia, anhydrous	7664-41-7	WEL	25	18	35	25				EH40/2005

Notation	
Ceiling-C	ceiling value is a limit value above which exposure should not occur
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)

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.

- 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

Physical state	liquid
Colour	colourless
Odour	stinging
Melting point/freezing point	-57.5 °C
Boiling point or initial boiling point and boiling range	100 °C
Flammability	non-combustible
Lower and upper explosion limit	15 vol% - 33 vol%
Flash point	not determined
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined

Solubility(ies)

Water solubility	miscible in any proportion

Partition coefficient

Partition coefficient n-octanol/water (log value)	not relevant (inorganic)

Vapour pressure	480 hPa at 20 °C

Density and/or relative density

Density	0.91 $^{g}/_{cm^3}$ at 20 °C
Relative vapour density	information on this property is not available

Particle characteristics	not relevant (liquid)

9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics

Miscibility	Completely miscible with water.
Liquid content	75 %
Solid content	0 %

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

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

There is no additional information.

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

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.

Acute toxicity estimate (ATE) of components

Name of substance	CAS No	Exposure route	ATE
ammonia, anhydrous	7664-41-7	inhalation: gas	>700 $^{ppmV}/_{4h}$

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

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.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life.

Aquatic toxicity (acute) of components

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
ammonia, anhydrous	7664-41-7	LC50	0.083 $^{mg}/_{l}$	fish	96 h
ammonia, anhydrous	7664-41-7	EC50	10 $^{mg}/_{l}$	aquatic invertebrates	48 h

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

According to the results of its assessment, this substance is not a PBT or a vPvB. Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

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.

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/packagings

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.

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	UN 2672
IMDG-Code	UN 2672
ICAO-TI	UN 2672

14.2 UN proper shipping name

ADR/RID	AMMONIA SOLUTION
IMDG-Code	AMMONIA SOLUTION
ICAO-TI	Ammonia solution

14.3 Transport hazard class(es)

ADR/RID	8
IMDG-Code	8
ICAO-TI	8

14.4 Packing group

ADR/RID	III
IMDG-Code	III
ICAO-TI	III

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

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - Additional information

Classification code	C5
Danger label(s)	8, fish and tree

Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	543
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	E
Hazard identification No	80
Emergency Action Code	2X

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information

Classification code	C5
Danger label(s)	8, fish and tree

Environmental hazards	yes (hazardous to water)
Special provisions (SP)	543
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Hazard identification No	80

International Maritime Dangerous Goods Code (IMDG) - Additional information

Marine pollutant	yes (P) (hazardous to the aquatic environment)
Danger label(s)	8, fish and tree

Special provisions (SP)	-
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-A, S-B
Stowage category	A
Segregation group	18 - Alkalis

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Environmental hazards	yes (hazardous to the aquatic environment)
Danger label(s)	8

Special provisions (SP)	A64
Excepted quantities (EQ)	E1
Limited quantities (LQ)	1 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)

Deco-Paint Directive

VOC content	0 %

Industrial Emissions Directive (IED)

VOC content	0 %

National regulations (GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

none of the ingredients are listed

Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)

Name of substance	Name acc. to inventory	CAS No	No
ammonia solution 25%	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
ammonia, anhydrous	flammable / pyrophoric		40

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

Country	Inventory	Status
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 (ACTIVE)

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
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)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
1.1	Trade name: Ammonia ... %	Trade name: Ammonia solution 25%	yes
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.2		- Hazard statements: change in the listing (table)	yes
2.3	Other hazards: of no significance	Other hazards	yes
2.3		Results of PBT and vPvB assessment: Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
3.1		Index No (GB CLP): 007-001-01-2	yes
3.2		Description of the mixture: change in the listing (table)	yes
3.2		Description of the mixture: change in the listing (table)	yes
3.2		Remarks: For full text of abbreviations: see SECTION 16	yes

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
7.2	- Ventilation requirements: Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted.		yes
11.1	Acute toxicity: Harmful if inhaled.	Acute toxicity: Shall not be classified as acutely toxic.	yes
11.1		- Acute toxicity estimate (ATE): change in the listing (table)	yes
11.1		Acute toxicity estimate (ATE) of components: change in the listing (table)	yes
12.1		Aquatic toxicity (acute) of components: change in the listing (table)	yes
12.5	Results of PBT and vPvB assessment: Data are not available.	Results of PBT and vPvB assessment: According to the results of its assessment, this substance is not a PBT or a vPvB. Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.	yes
12.6	Endocrine disrupting properties: Information on this property is not available.	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
15.1		List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list: none of the ingredients are listed	yes
15.1	Restrictions according to GB REACH, Annex 17: none of the ingredients are listed	Restrictions according to GB REACH, Annex 17	yes
15.1		Dangerous substances with restrictions (GB REACH, Annex 17): change in the listing (table)	yes
15.1		National inventories: change in the listing (table)	yes
16		Abbreviations and acronyms: change in the listing (table)	yes
16		List of relevant phrases (code and full text as stated in section 2 and 3): change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
Acute Tox.	Acute toxicity
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
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)

Abbr.	Descriptions of used abbreviations
Ceiling-C	Ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
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)
ED	Endocrine disruptor
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
Flam. Gas	Flammable gas
GB CLP	The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended)
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
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
IOELV	Indicative occupational exposure limit value
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
M-factor	Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
Press. Gas	Gas under pressure
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

Abbr.	Descriptions of used abbreviations
Skin Irrit.	Irritant to skin
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

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). 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
H221	Flammable gas.
H280	Contains gas under pressure; may explode if heated.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H411	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.

Precautionary statement(s)	
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	2,2′-MethyliminodiethanolMDEAN,N-Diethanolmethylamin*N*,*N*-Bis(2-hydroxyethyl)methylamine
Formula	:	$C_5H_{13}NO_2$
Molecular weight	:	119,16 g/mol
CAS-No.	:	105-59-9
EC-No.	:	203-312-7
Index-No.	:	603-079-00-5

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component		Classification	Concentration
N-Methyldiethanolamine			
CAS-No. EC-No. Index-No.	105-59-9 203-312-7 603-079-00-5	Eye Irrit. 2; H319	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of

contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0,6 mm
Break through time: 480 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 120 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, viscous liquid Colour: light yellow
b)	Odour	ammoniacal
c)	Odour Threshold	No data available
d)	pH	11,5 at 100 g/l at 20 °C
e)	Melting point/freezing point	Melting point/range: -21,3 °C
f)	Initial boiling point and boiling range	246 - 248 °C - lit.
g)	Flash point	127 °C - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8,8 %(V) Lower explosion limit: 1,4 %(V)

k)	Vapour pressure	0,01 hPa at 20 °C
l)	Vapour density	4,11 - (Air = 1.0)
m)	Relative density	1,038 g/cm3 at 25 °C
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	log Pow: -1,08
p)	Auto-ignition temperature	280 °C at 1.013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Dissociation constant	8,52 at 25 °C
Relative vapour density	4,11 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Do not store near acids.

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 4.680 mg/kg
(OECD Test Guideline 401)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test - Guinea pig

Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
in vitro assay
S. typhimurium
Result: negative

Mutagenicity (micronucleus test)
Mouse - male and female
Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Reproductive toxicity - Rat - Skin
Maternal Effects: Other effects.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Cough, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - 1.466 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 233 mg/l - 48 h
Toxicity to algae	static test EC50 - Desmodesmus subspicatus (Scenedesmus subspicatus) - > 100 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 7 % - Not biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

14.4 Packaging group

ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors	: N-Methyldiethanolamine
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	: Neither banned nor restricted
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	: Neither banned nor restricted
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006.
Listed substance / Sunset Date:

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	: Neither banned nor restricted
Regulation (EC) No 850/2004 on persistent organic pollutants	: Neither banned nor restricted

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H319	Causes serious eye irritation.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 12.12.2019 Version 2.0

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

1.1 Product identifier

Catalogue No.	533003
Product name	Ammonia solution 25% for LC-MS LiChropur®
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin corrosion, Category 1B, H314
Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335
Short-term (acute) aquatic hazard, Category 1, H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Precautionary statements
Prevention
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.

Precautionary statements
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

2.3 Other hazards
None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous ammoniacal solution.

3.1 Substance
Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
ammonia solution (>= 25 % - < 50 %)		
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.		
1336-21-6	01-2119488876-14-xxxx	Skin corrosion, Category 1B, H314 Specific target organ toxicity - single exposure, Category 3, H335 Short-term (acute) aquatic hazard, Category 1, H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice
First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, bronchitis, Cough, Shortness of breath, gastric pain, Unconsciousness, Bloody vomiting, Nausea, collapse, shock, Convulsions, Lung oedema, death
Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.
Ambient fire may liberate hazardous vapours.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not empty into drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH^-, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
No metal or light-weight-metal containers.

Storage conditions

Tightly closed.

Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

ammonia solution (1336-21-6)

Worker DNEL, acute	Systemic effects	dermal	6,8 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	dermal	6,8 mg/kg Body weight
Worker DNEL, acute	Systemic effects	inhalation	47,6 mg/m³
Worker DNEL, acute	Local effects	inhalation	36 mg/m³
Worker DNEL, longterm	Systemic effects	inhalation	47,6 mg/m³
Worker DNEL, longterm	Local effects	inhalation	14 mg/m³
Consumer DNEL, acute	Systemic effects	dermal	68 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	dermal	68 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	inhalation	23,8 mg/m³
Consumer DNEL, acute	Local effects	inhalation	7,2 mg/m³
Consumer DNEL, longterm	Systemic effects	inhalation	23,8 mg/m³
Consumer DNEL, longterm	Local effects	inhalation	2,8 mg/m³
Consumer DNEL, acute	Systemic effects	oral	6,8 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	6,8 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

ammonia solution (1336-21-6)

PNEC Fresh water	0,0011 mg/l
PNEC Aquatic intermittent release	0,0068 mg/l
PNEC Marine water	0,00011 mg/l

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection
Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	240 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 730 Camatril® -Velours (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Recommended Filter type: Filter K (acc. to DIN 3181) for NH_3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.

Environmental exposure controls
Do not empty into drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	stinging

Odour Threshold	0,02 - 70,7 ppm Ammonia
pH	at 20 °C strongly alkaline
Melting point	-57,5 °C
Boiling point/boiling range	37,7 °C at 1.013 hPa
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	15,4 %(V)
Upper explosion limit	33,6 %(V)
Vapour pressure	483 hPa at 20 °C
Relative vapour density	No information available.
Density	0,903 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: -1,38 (experimental) (anhydrous substance) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Minimum ignition energy 380 - 680 mJ

SECTION 10. Stability and reactivity

10.1 Reactivity
See section 10.3

10.2 Chemical stability
Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.

10.3 Possibility of hazardous reactions
A risk of explosion and/or of toxic gas formation exists with the following substances:

Oxidizing agents, Mercury, Oxygen, silver compounds, nitrogen trichloride, hydrogen peroxide, silver, antimony hydride, halogens, Acids, Calcium, Chlorine, Chlorites, auric salts, perchlorates, sodium hypochlorite, mercury compounds, halogen oxides

Heavy metals, Heavy metal salts, Acid chlorides, Acid anhydrides

Risk of ignition or formation of inflammable gases or vapours with:

Boranes, Boron, Oxides of phosphorus, Nitric acid, silicon compounds, chromium(VI) oxide, chromyl chloride

Exothermic reaction with:

Acetaldehyde, Acrolein, Barium, boron compounds, Bromine, halogen-halogen compounds, hydrogen bromide, silane, Hydrogen chloride gas, halogen compounds, dimethylsulfate, nitrogen oxides, Fluorine, Hydrogen fluoride, chlorates, carbon dioxide

Ethylene oxide, polymerisable

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Aluminium, Lead, Nickel, silver, Zinc, Copper, metal alloys, various metals

10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects
Mixture

Acute oral toxicity
LDLO human: 43 mg/kg

(29% solution) (RTECS)

Symptoms: gastric pain, Bloody vomiting, If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, bronchitis, Possible damages:, damage of respiratory tract

Acute dermal toxicity
This information is not available.

Skin irritation
Rabbit
Result: Severe irritations

(29% solution) (RTECS)

Dermatitis Necrosis
Mixture causes burns.

Eye irritation
Rabbit
Result: Severe irritations

(29% solution) (RTECS)

Mixture causes serious eye damage. Risk of blindness!

Sensitisation
This information is not available.

Germ cell mutagenicity
This information is not available.

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
Mixture may cause respiratory irritation.
Target Organs: Respiratory system

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information

Systemic effects:
Nausea, collapse, shock, Unconsciousness, Convulsions
Lung oedema, Possible effects:
death
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

ammonia solution
No information available.

SECTION 12. Ecological information

Mixture

12.1 Toxicity
No information available.

12.2 Persistence and degradability
Biodegradability

Not readily biodegradable.

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: -1,38
(experimental)

(anhydrous substance) (Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects
Additional ecological information
Biological effects:
Harmful effect due to pH shift.
Forms toxic and corrosive mixtures with water even if diluted.
Discharge into the environment must be avoided.

Components
ammonia solution

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

SECTION 13. Disposal considerations

Waste treatment methods
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 2672
14.2 Proper shipping name	AMMONIA SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 2672
14.2 Proper shipping name	AMMONIA SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 2672
14.2 Proper shipping name	AMMONIA SOLUTION
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
EmS	F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard Legislation	SEVESO III ENVIRONMENTAL HAZARDS E1 Quantity 1: 100 t Quantity 2: 200 t
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation

Storage class	8B

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

Training advice
Provide adequate information, instruction and training for operators.

Labelling
Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Precautionary statements
Prevention
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Relevant changes since previous version
2. Hazards identification
9. Physical and chemical properties

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation
This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

SAFETY DATA SHEET

PRODUCT

NALCO® 7399

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO® 7399**

APPLICATION : CORROSION INHIBITOR, SCALE INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin or on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available. Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Not expected to burn. Use extinguishing media appropriate for surrounding fire. Keep containers cool by spraying with water.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed.

UNSUITABLE CONSTRUCTION MATERIAL :
Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is:
Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	None

SPECIFIC GRAVITY	1.22 - 1.26 @ 77 °F / 25 °C
DENSITY	10 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	6.3 - 10.0
VISCOSITY	15 cps @ 77 °F / 25 °C
FREEZING POINT	28.4 °F / -2 °C
BOILING POINT	212 °F / 100 °C

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Extremes of temperature

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of phosphorus, Oxides of carbon

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	> 1,000 mg/l	Product
Rainbow Trout	96 hrs	880 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Mysid Shrimp (Mysidopsis bahia)	96 hrs	> 1,000 mg/l		Product
Daphnia magna	48 hrs	> 500 mg/l		Product

CHRONIC FISH RESULTS :

Species	Exposure	NOEC / LOEC	End Point	Test Descriptor
Fathead Minnow	7 Days	313 mg/l / 625 mg/l	Growth	Product

CHRONIC INVERTEBRATE RESULTS :

Species	Test Type	NOEC / LOEC	End Point	Test Descriptor
Ceriodaphnia dubia	3 Brood	313 mg/l / 625 mg/l	Reproduction	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 2,500 mg/l

Chemical Oxygen Demand (COD) : 4,600 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	< 6 mg/l	

The organic portion of this preparation is expected to be readily biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, none of the substances in this product are hazardous.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods.

Limitations: no more than required to produce intended technical effect.

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 062430
This product is acceptable as a water conditioner (G2) for the treatment of entire potable water systems at concentrations not to exceed 10 ppm calculated as phosphate ion in and around food processing areas. This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the corrosion and scale control category. The official name is "Miscellaneous Corrosion Chemicals." Maximum product application dosage is : 40 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 06/09/2011
Version Number : 1.12

SAFETY DATA SHEET
Neste Renewable Diesel; Neste Renewable Diesel 100 %; Neste MY Renewable Diesel

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

1.1. Product identifier

Product name	Neste Renewable Diesel; Neste Renewable Diesel 100 %; Neste MY Renewable Diesel
Chemical name	Renewable hydrocarbons (diesel type fraction)
Product number	ID 13898
UFI	UFI: SDGM-514C-9915-FWKJ
EU REACH registration number	01-2119450077-42-0000
EU REACH registration notes	01-2119450077-42-0000 / -0001 / -0002

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

Identified uses	Formulation & (re)packing of substances and mixtures (ES 02) Distribution of substance (ES 04) Use as an intermediate (ES 05) Use as a fuel (ES 06, 14, 23)

1.3. Details of the supplier of the safety data sheet

Supplier	Neste Oyj Keilaranta 21, Espoo, P.O.B. 95, FIN-00095 NESTE, FINLAND Tel. +358 10 45811 SDS@neste.com (chemical safety)

1.4. Emergency telephone number

Emergency telephone	+61 2 9186 1132, Chemwatch: International Emergency Response Phone Number
National emergency telephone number	+358 800 147 111, +358 9 471 977, Poison Information Centre

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (SI 2019 No. 720)

Physical hazards	Not Classified
Health hazards	Asp. Tox. 1 - H304
Environmental hazards	Not Classified

2.2. Label elements

Hazard pictograms

Signal word Danger

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Hazard statements	H304 May be fatal if swallowed and enters airways.
Precautionary statements	P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P331 Do NOT induce vomiting. P501 Dispose of contents/ container in accordance with national regulations.
Supplemental label information	EUH066 Repeated exposure may cause skin dryness or cracking.
Contains	Renewable hydrocarbons (diesel type fraction)

2.3. Other hazards

Other hazards	Combustible liquid. Risk of soil and ground water contamination. This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Renewable hydrocarbons (diesel type fraction) CAS number: —	**ca. 100%**
Classification Asp. Tox. 1 - H304	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Other information	Mixture of renewable raw material fuel and additives., Contains middle distillate-range iso- and n-paraffinic hydrocarbons., Total aromatics at maximum 1,0 Weight %., Renewable hydrocarbons (diesel type fraction):, REACH Nr: 01-2119450077-42-0000 / -0001 / -0002., Identity outside the EU (CAS number and name of the substance):, Alkanes, C10-20-branched and linear, CAS 928771-01-1.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature. If spray/mist has been inhaled, proceed as follows. Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist.
Ingestion	Do not induce vomiting. Get medical attention immediately.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.
Eye contact	Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists after washing.

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

General information	Repeated exposure may cause skin dryness or cracking. Spray/mists may cause respiratory tract irritation. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

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

Notes for the doctor	Treat symptomatically.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters

5.2. Special hazards arising from the substance or mixture

Specific hazards Combustible liquid. Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Carbon dioxide (CO2). Carbon monoxide (CO).

5.3. Advice for firefighters

Protective actions during firefighting Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear adequate protective equipment at all operations.

For emergency responders Prevent unauthorized access. Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharge.

6.2. Environmental precautions

Environmental precautions Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Immediately start clean-up of the liquid and contaminated soil. Contain spillage with sand, earth or other suitable non-combustible material. Pay attention to the fire and health hazards caused by the product.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. Use only outdoors or in a well-ventilated area. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Do not eat, drink or smoke when using this product. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Flammable liquid storage. Store in accordance with local regulations. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Only store in correctly labelled containers. Use containers made of the following materials: Carbon steel. Stainless steel.

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7.3. Specific end use(s)

Specific end use(s) Not known.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Ingredient comments The individual limit values can be applied for the hydrocarbons. Diesel fuel as total hydrocarbons; ACGIH TLV®-TWA (8h) 100 mg/m3 (IFV).

PNEC Not available.

Renewable hydrocarbons (diesel type fraction)

DNEL

Workers - Inhalation; Long term systemic effects: 147 mg/m³
Workers - Dermal; Long term systemic effects: 42 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 94 mg/m³
Consumer - Dermal; Long term systemic effects: 18 mg/kg/day

8.2. Exposure controls

Appropriate engineering controls Provide adequate ventilation. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

Eye/face protection Spectacles.

Hand protection Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Neoprene. Polyvinyl chloride (PVC). The breakthrough time for any glove material may be different for different glove manufacturers. Protective gloves according to standard EN 374. Change protective gloves regularly.

Other skin and body protection Protective clothing when needed. Wear anti-static protective clothing if there is a risk of ignition from static electricity.

Respiratory protection Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P2. Filter must be changed often enough. Gas and combination filter cartridges suitable for intended use should be used. At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus).

Environmental exposure controls Store in a demarcated bunded area to prevent release to drains and/or watercourses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Liquid.

Colour Clear.

Odour Mild.

Odour threshold -

pH -

Melting point Pour point < -20°C @ 1013 hPa (BS4633, EC A1)

Initial boiling point and range 180-320°C (EN ISO 3405)

Flash point > 61°C (EN ISO 2719, EC A9)

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Upper/lower flammability or explosive limits	-
Vapour pressure	0,087 kPa @ 25°C (EC A4)
Vapour density	-
Relative density	0,77 - 0,79 @ 15/4°C (EN ISO 12185, EC A3)
Solubility(ies)	Insoluble in water. ~ 0,075 mg/l water @ 25°C (calculated) Soluble in the following materials: Methanol. Hydrocarbons.
Partition coefficient	log Kow: > 6,5 (EC A8)
Auto-ignition temperature	204°C (EC A15)
Decomposition Temperature	-
Viscosity	Kinematic viscosity 4.0 mm2/s @ 20°C 2.6 mm2/s @ 40°C (OECD 114) Dynamic viscosity ≤ 5 mPa s @ 20°C
Explosive properties	Not considered to be explosive. (EC A14)
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	Not known.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No potentially hazardous reactions known.

10.4. Conditions to avoid

Conditions to avoid	Keep away from heat, sparks and open flame.

10.5. Incompatible materials

Materials to avoid	Oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products	Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects	Based on available data the classification criteria are not met.

Skin corrosion/irritation

Skin corrosion/irritation	Based on available data the classification criteria are not met. (EC B4) Repeated exposure may cause skin dryness or cracking. The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory system irritation.

Serious eye damage/irritation

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Serious eye damage/irritation Based on available data the classification criteria are not met. (EC B5)

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met. (EC B6)

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met. (EC B10, B13/14 & B17).

Carcinogenicity

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

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met. (OECD 416)

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met. (OECD 408)

Aspiration hazard

Aspiration hazard May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

General information This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

Toxicological information on ingredients.

Renewable hydrocarbons (diesel type fraction)

Acute toxicity - oral

Notes (oral LD_{50}) LD_{50} >2000 mg/kg, Oral, Rat (EC B1 tris)

Acute toxicity - dermal

Notes (dermal LD_{50}) LD_{50} > 2000 mg/kg, Dermal, Rat (EC B3)

SECTION 12: Ecological information

12.1. Toxicity

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

Ecological information on ingredients.

Renewable hydrocarbons (diesel type fraction)

Acute aquatic toxicity

Acute toxicity - fish LL_{50}, 96 hours: > 1000 mg/l, WAF (OECD 203)

Acute toxicity - aquatic invertebrates EL50, 48 hours: > 100 mg/l, WAF (OECD 202)

Acute toxicity - aquatic plants EL50, 72 hours: > 100 mg/l, Algae WAF (OECD 201)

Acute toxicity - microorganisms EC_{50}, 30-180 minutes: > 1000 mg/l, Micro-organisms (wastewater sludge) (OECD 209)

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Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 1 mg/l, LOEC, 21 days: 3,2 mg/l, WAF (OECD 211) Sediment organisms NOEC, 10 days: 373 mg/kg, LOEC, 10 days: 1165 mg/kg, LC_{50}, 10 days: 1200 mg/kg, (OSPAR Protocols, Part A: Sediment Bioassay, 2005)

12.2. Persistence and degradability

Stability (hydrolysis)	No significant reaction in water.
Biodegradation	Rapidly degradable (OECD 301B).

Ecological information on ingredients.

Renewable hydrocarbons (diesel type fraction)

Biodegradation	Rapidly degradable (OECD 301B).

12.3. Bioaccumulative potential

Bioaccumulative potential	Possibly bioaccumulative.
Partition coefficient	log Kow: > 6,5 (EC A8)

12.4. Mobility in soil

Mobility	Evaporates slowly. The product has poor water-solubility. The product contains substances which are bound to particulate matter and are retained in soil. Log Koc > 5.6 (EC C19).

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects	Not known.
Endocrine-disrupting properties	This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Product residues retained in emptied containers can be hazardous. Waste packaging should be collected for reuse or recycling.

SECTION 14: Transport information

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Sea transport notes This cargo is considered an Energy-rich fuel and effective 1 January 2019 should be carried subject to Annex I of MARPOL, see Annex 12 of MEPC.2/Circ.24. Please also refer to MEPC.1/Circ.879 - GUIDELINES FOR THE CARRIAGE OF ENERGY-RICH FUELS AND THEIR BLENDS

14.1. UN number

UN No. (ADR/RID) 1202

UN No. (IMDG) Not classified under IMDG.

14.2. UN proper shipping name

Proper shipping name (ADR/RID) UN 1202 DIESEL FUEL

14.3. Transport hazard class(es)

ADR/RID class 3

ADN subsidiary risk F (floater)

14.4. Packing group

ADR/RID packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

Hazard Identification Number (ADR/RID) 30

Tunnel restriction code (D/E)

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

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

National regulations UK REACH Registration number: UK-01-9638319484-0-XXXX.
Only Representative UK: Penman Consulting Limited 41, Aspect House, Waylands Avenue, Grove Business Park, Wantage, Oxon, OX12 9FF, United Kingdom; Telephone: 01367 718474, Email: pcltd41@penmanconsulting.com.
Location of manufacture: Neste Rotterdam Refinery, the Netherlands.
EU regulatory references for the safety data sheet:
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) (as amended)
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 (as amended)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

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SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	DNEL = Derived No-Effect Level PNEC = Predicted No-Effect Concentration WAF = Water Accommodated Fraction
Key literature references and sources for data	Regulations, databases, literature, own research. Chemical Safety Report Renewable hydrocarbons (diesel type fraction), 2017.
Revision comments	Updated, sections: 1, 2, 11, 12 NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	02/02/2023
Supersedes date	26/07/2022
SDS number	5359
Hazard statements in full	H304 May be fatal if swallowed and enters airways.

Exposure scenario
Distribution of Substance - Industrial

Identification

Product name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
Version number	2017
Es reference	04

1. Title of exposure scenario

Main title	Distribution of Substance - Industrial
Process scope	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 1.1b.v1

Worker

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 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 5000 t
Annual amount per site: ≤ 1 500 000 t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	0,001%
Emission factor - water	4E-7%.
Emission factor - soil	0,001%

Environmental factors not influenced by risk management measures

Distribution of Substance - Industrial

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	All waste product is assumed to be collected and returned for re-processing or use as a fuel.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC 3, PROC 15: Covers skin contact area up to 240 cm². Palm of one hand. PROC 2, PROC 9: Covers skin contact area up to 480 cm². Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm². Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40°C
Ventilation rate	1 -3 air changes per hour Unless otherwise stated. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Distribution of Substance - Industrial

General exposures (closed systems)
With occasional controlled exposure
(PROC 3)
No specific measures identified.

Process sampling
(PROC 3)
Wear suitable gloves tested to EN374.

Laboratory activities
(PROC 15)
Provide adequate general and local exhaust ventilation.
Wear suitable gloves tested to EN374.
Recommendation:
Handle in a fume cupboard or under extract ventilation.

Bulk transfers
Road tanker/rail car loading.
(closed systems)
(PROC 8b)
Recommendation:
Use vapour recovery units when necessary.
Wear suitable gloves tested to EN374.

Bulk transfers
Marine vessel/barge (un)loading.
(closed systems)
(PROC 8b)
Recommendation:
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance
(PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.

Storage
With occasional controlled exposure
(PROC 2)
No specific measures identified.

Drum and small package filling
(PROC 9)
Recommendation:
Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method Used CHESAR model.

Exposure scenario
Formulation & (re)packing - Industrial

Identification

Product name Renewable hydrocarbons (diesel type fraction)

EU REACH registration number 01-2119450077-42-XXXX

Version number 2017

Es reference 02

1. Title of exposure scenario

Main title Formulation & (re)packing - Industrial

Process scope Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Main sector SU3 Industrial uses

Environment

Environmental release category ERC2 Formulation into mixture

SPERC ESVOC SPERC 2.2.v1

Worker

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
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)
PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 100 t
Annual amount per site: ≤ 1 500 000 t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air 0,25%

Formulation & (re)packing - Industrial

Emission factor - water	0,005%
Emission factor - soil	0.01%

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	All waste product is assumed to be collected and returned for re-processing or use as a fuel.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC 1, PROC 3, PROC 15: Covers skin contact area up to 240 cm². Palm of one hand. PROC 2, PROC 5, PROC 9: Covers skin contact area up to 480 cm². Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm². Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40 °C
Ventilation rate	1 - 3 air changes per hour Unless otherwise stated. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Formulation & (re)packing - Industrial

Mixing operations
(PROC 3)
No specific measures identified.

Batch processes at elevated temperatures
(PROC 3)
No specific measures identified.

Process sampling
(PROC 3)
Wear suitable gloves tested to EN374.

Laboratory activities
(PROC 15)
Provide adequate general and local exhaust ventilation.
Wear suitable gloves tested to EN374.
Recommendation:
Handle in a fume cupboard or under extract ventilation.

Bulk transfers
(PROC 8b)
No specific measures identified.

Mixing operations
(open systems)
With potential for aerosol generation
(PROC 5)
Recommendation:
Wear suitable gloves tested to EN374.

Transfer from/pouring from containers
Manual
(PROC 8a)
Wear suitable gloves tested to EN374.

Drum/batch transfers
(PROC 8b)
No specific measures identified.

Drum and small package filling
(PROC 9)
Provide adequate general and local exhaust ventilation.
Recommendation:
Fill containers/cans at dedicated fill points supplied with local extract ventilation.

Equipment cleaning and maintenance
(PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.

Storage
(PROC 1, PROC 2)
No specific measures identified.

Formulation & (re)packing - Industrial

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method Used CHESAR model.

Exposure scenario
Use as a fuel - Industrial

Identification

Product name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
Version number	2017
Es reference	06

1. Title of exposure scenario

Main title	Use as a fuel - Industrial
Process scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 7.12a.v1

Worker

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 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 PROC15 Use as laboratory reagent. PROC16 Use of fuels

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 5000 t
Annual amount per site: ≤ 10 000 t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	0.025%
Emission factor - water	0,001%
Emission factor - soil	0%

Use as a fuel - Industrial

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC 1, PROC 3, PROC 15, PROC 16: Covers skin contact area up to 240 cm². Palm of one hand. PROC 2, PROC 4: Covers skin contact area up to 480 cm². Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm². Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40 °C
Ventilation rate	1 - 3 air changes per hour Unless otherwise stated. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Use as a fuel - Industrial

Bulk transfers
(PROC 4)
Recommendation:
Wear suitable gloves tested to EN374.

Drum/batch transfers
(PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.

Bulk transfers
(PROC 8b)
Recommendation:
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.

General exposures (closed systems)
Continuous process
(PROC 1)
No specific measures identified.

General exposures (closed systems)
Continuous process
With sample collection
(PROC 2)
Recommendation:
Ensure material transfers are under containment or extract ventilation.

General exposures (closed systems)
Batch process
(PROC 3)
Recommendation:
Ensure material transfers are under containment or extract ventilation.

General exposures (open systems)
(PROC 16)
Recommendation:
Ensure material transfers are under containment or extract ventilation.

Process sampling
(PROC 3)
Recommendation:
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance
(PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.

Vessel and container cleaning
(PROC 8a)

Use as a fuel - Industrial

Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Provide enhanced general ventilation by mechanical means.
If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
Wear suitable gloves tested to EN374.
Wear suitable coveralls to prevent exposure to the skin.

Storage
(PROC 1, PROC 2)
No specific measures identified.

Refuelling
(PROC 8b)
Recommendation:
Use drum pumps or carefully pour from container.
Use vapour recovery units when necessary.
Wear suitable gloves tested to EN374.

Laboratory activities
(PROC 15)
Recommendation:
Handle in a fume cupboard or under extract ventilation.
Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method Used CHESAR model.

Exposure scenario
Use as a fuel - Professional

Identification

Product name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
Version number	2017
Es reference	14

1. Title of exposure scenario

Main title	Use as a fuel - Professional
Process scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12b.v1

Worker

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 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 PROC16 Use of fuels

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 0.1
Daily amount per site: ≤ 160 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	0,01 %
Emission factor - water	0,001 %
Emission factor - soil	0,001 %

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Use as a fuel - Professional

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC 1, PROC 3, PROC 16: Covers skin contact area up to 240 cm². Palm of one hand. PROC 2: Covers skin contact area up to 480 cm². Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm². Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40 °C
Ventilation rate	1 - 3 air changes per hour Unless otherwise stated.

Risk management measures

Use as a fuel - Professional

Bulk transfers
Heating oil and diesel deliveries
(PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Handle substance within a closed system.
Wear suitable gloves tested to EN374.
.
Drum/batch transfers
(PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.
.
Refuelling
(PROC 8b)
Provide adequate general and local exhaust ventilation.
Recommendation:
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.
.
Dipping, immersion and pouring
(PROC 8b)
Wear suitable gloves tested to EN374.
.
General exposures
(PROC 1, PROC 2, PROC 3, PROC 16)
No specific measures identified.
.
Equipment cleaning and maintenance
(PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.
.
Vessel and container cleaning
(PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.
.
Storage
(PROC 1, PROC 2)
No specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method Used CHESAR model.

Exposure scenario
Use as a fuel - Consumer

Identification

Product name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
Version number	2017
Es reference	23

1. Title of exposure scenario

Main title	Use as a fuel - Consumer
Process scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Product category	PC13 Fuels.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12c.v1

Non-industrial

Product sub-category	PC13_1 Liquid: automotive refuelling PC13_2 Liquid: scooter refuelling PC13_3 Liquid: garden equipment - use PC13_4 Liquid: Garden equipment - Refuelling PC13_5 Liquid: lamp oil PC13_6 Liquid: home space heater fuel PC13_n Liquid: refuelling of boats

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 0,1
Daily amount per site: ≤ 550 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	0,01 %
Emission factor - water	0,001 %
Emission factor - soil	0,001 %

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

Use as a fuel - Consumer

Technical measures	Indoor/outdoor use.
STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Concentration details Covers percentage substance in the product up to 100% (unless stated differently).

Amounts used

PC13_1 Liquid: automotive refuelling
For each use event, covers use amounts up to 38,6 kg.
PC13_2 Liquid: scooter refuelling
For each use event, covers use amounts up to 7,5 kg.
PC13_3 Liquid: garden equipment - use
For each use event, covers use amounts up to 772 g.
PC13_4 Liquid: Garden equipment - Refuelling
For each use event, covers use amounts up to 772 g.
PC13_5 Liquid: lamp oil
For each use event, covers use amounts up to 100 g.
PC13_6 Liquid: home space heater fuel
For each use event, covers use amounts up to 3320 g.
PC13_n Liquid: refuelling of boats
For each use event, covers use amounts up to 156,0 kg.

Frequency and duration of use

Use as a fuel - Consumer

Covers use up to 1 time(s)/day.
.
PC13_1 Liquid: automotive refuelling
Covers exposure up to 0,05 hours per event.
(occasional use over a year)
.
PC13_2 Liquid: scooter refuelling
Covers exposure up to 0,02 hours per event.
(frequent use over a year)
.
PC13_3 Liquid: garden equipment - use
Covers exposure up to 2,00 hours per event.
(occasional use over a year)
.
PC13_4 Liquid: Garden equipment - Refuelling
Covers exposure up to 0,03 hours per event.
(occasional use over a year)
.
PC13_5 Liquid: lamp oil
Covers exposure up to 0,01 hours per event.
(occasional use over a year)
.
PC13_6 Liquid: home space heater fuel
Covers exposure up to 0,1 hours per event.
(frequent use over a year)
.
PC13_n Liquid: refuelling of boats
Covers exposure up to 0,25 hours per event.
(infrequent use over a year)

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hand. Unless otherwise stated. PC13_4 Liquid: Garden equipment - Refuelling : Palm of both hands.

Other given operational conditions affecting Non-industrial exposure

Setting	Outdoor use. Unless otherwise stated. PC13_5 Liquid: lamp oil : Indoor/outdoor use.

Other given operational conditions affecting Non-industrial exposure

Avoid contact with skin, eyes and clothing. Wash promptly if skin becomes contaminated. All handling should only take place in well-ventilated areas. Do not ingest. If swallowed, then seek immediate medical assistance.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method Used CHESAR model.

Exposure scenario
Use as Intermediate - Industrial

Identification

Product name	Renewable hydrocarbons (diesel type fraction)
EU REACH registration number	01-2119450077-42-XXXX
Version number	2017
Es reference	05

1. Title of exposure scenario

Main title	Use as Intermediate - Industrial
Process scope	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6a Use of intermediate
SPERC	ESVOC SPERC 6.1a.v1

Worker

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 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 PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Fraction of EU tonnage used in region: 1
Daily amount per site: ≤ 50 t
Annual amount per site: ≤ 15 000 t

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	0,002%
Emission factor - water	0,001%
Emission factor - soil	0.1%

Use as Intermediate - Industrial

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Risk management measures

STP type	Aerobic biological treatment
STP details	Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Disposal method	Dispose of waste in accordance with environmental legislation.

Conditions and measures related to external recovery of waste

Recovery method	Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC 1, PROC 3, PROC 15: Covers skin contact area up to 240 cm². Palm of one hand. PROC 2, PROC 4: Covers skin contact area up to 480 cm². Palm of both hands. PROC 8a, 8b: Covers skin contact area up to 960 cm². Both hands.

Other given operational conditions affecting workers exposure

Setting	Indoor use.
Temperature	≤ 40 °C
Ventilation rate	1 - 3 air changes per hour Unless otherwise stated. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Use as Intermediate - Industrial

General exposures (closed systems)
(PROC 1)
No specific measures identified.

General exposures (closed systems)
With sample collection
With occasional controlled exposure
(PROC 2)
No specific measures identified.

General exposures (closed systems)
Batch process
(PROC 3)
No specific measures identified.

General exposures (open systems)
Batch process
With sample collection
(PROC 4)
No specific measures identified.

Sampling
(PROC 8b)
No specific measures identified.

Laboratory activities
(PROC 15)
Provide adequate general and local exhaust ventilation.
Wear suitable gloves tested to EN374.
Recommendation:
Handle in a fume cupboard or under extract ventilation.

Bulk transfers
(closed systems)
(PROC 8b)
No specific measures identified.

Equipment cleaning and maintenance
(PROC 8a)
Provide adequate general and local exhaust ventilation.
Recommendation:
Drain down and flush system prior to equipment break-in or maintenance.
Wear suitable gloves tested to EN374.

Storage
(PROC 1, PROC 2)
No specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model.

3. Exposure estimation (Health 1)

Assessment method Used CHESAR model.

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)/(EU) 2020/878

MOUSSOL®-FF 3/6 F-5 #7942

no PFAS added

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

1.1 Product identifier

MOUSSOL®-FF 3/6 F-5 #7942

UFI: 1VYP-W0HT-U000-CRJH

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

Use of the substance/mixture
Fire-extinguishing foam

1.3 Details of the supplier of the safety data sheet

Manufacturer	Fabrik chemischer Präparate von Dr. R. Sthamer GmbH & Co. KG
Street	Liebigstraße 5
Postal code/City	D-22113 Hamburg
Country	Deutschland
Telephone	+49 (0)40/736168-0
Telefax	+49 (0)40/736168-60
E-mail (competent person)	labor@sthamer.com
Website	http://sthamer.com
Department responsible for information	Dr. Prall, +49 (0)40/736168-31
Emergency telephone number	+49 (0)40/736168-0

1.4 Emergency telephone number

GIZ-Nord Poisons Centre of the University of Göttingen	+49 (0)551/19240

SECTION 2: Hazards identification

The information in this section and in all following sections (unless otherwise stated) refer to the product in the delivery condition (concentrate). The ready-to-use solutions prepared according to the dilution recommendation are to be classified differently (see Section 16).

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]
Eye Irrit. 2 H319 - STOT RE 2 H373

2.2 Label elements

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

Signal word	**WARNING**	
Hazard statements	H319	Causes serious eye irritation.
	H373.8	May cause damage to kidneys through prolonged or repeated exposure if swallowed.
Precautionary statements	P262	Do not get in eyes, on skin, or on clothing.
	P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing 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.

Classification procedure On basis of test data./Experimental data

2.3 Other hazards

Endocrine disrupting properties

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

This substance does not have endocrine disrupting properties with respect to humans.

2-(2-BUTOXYETHOXY)ETHANOL:

This substance does not have endocrine disrupting properties with respect to humans.

TRIETHANOLAMMONIUM-LAURYLSULFATE:

This substance does not have endocrine disrupting properties with respect to humans.

ALKYLAMIDOBETAINE:

This substance does not have endocrine disrupting properties with respect to humans.

Results of PBT and vPvB assessment

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

2-(2-BUTOXYETHOXY)ETHANOL:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

TRIETHANOLAMMONIUM-LAURYLSULFATE:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

ALKYLAMIDOBETAINE:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

The data refer to the product as delivered. The solutions for use produced according to dilution recommendations are to be classified differently.
Can harm the aquatic fauna when entering surface waters.
Can harm the bacteria population in waste water treatment plants when entering the sewerage system.
Breathing is not possible whilst submerged in the foam. Take care when spraying people!
Concentrated surfactant solutions always pose a danger to aquatic life because they greatly reduce the surface tension of water thus disrupting all life processes associated with it. In sewage treatment plants, for example, the necessary aeration of the sewage stages can be hindered by the strong foam formation.

SECTION 3: Composition/information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

1,2-ETHANDIOL
CAS No.: 107-21-1
EC No.: 203-473-3
REACH No.: 01-2119456816-28-XXXX
Concentration: 10 - 15%
Classification according to Regulation (EC) No 1272/2008 [CLP]: GHS07-GHS08; Acute Tox. 4-STOT RE 2; H302-H373.8

2-(2-BUTOXYETHOXY)ETHANOL
CAS No.: 112-34-5
EC No.: 203-961-6
REACH No.: 01-2119475104-44-XXXX
Concentration: 5 - 10%
Classification according to Regulation (EC) No 1272/2008 [CLP]: GHS07; Eye Irrit. 2; H319

TRIETHANOLAMMONIUM-LAURYLSULFATE
CAS No.: 85665-45-8
EC No.: 288-134-8
REACH No.: 01-2119966908-16-XXXX
Concentration: 5 - 10%
Classification according to Regulation (EC) No 1272/2008 [CLP]: GHS05-GHS07; Acute Tox. 4-Skin Irrit. 2-Eye Irrit. 2-STOT SE 3-Aquatic Chronic 3; H302-H315-H318-H332-H335-H412

ALKYLAMIDOBETAINE
CAS No.: 147170-44-3
EC No.: 263-058-8
REACH No.: 01-2119552480-44-XXXX
Concentration: 1 - 5%
Classification according to Regulation (EC) No 1272/2008 [CLP]: GHS05; Eye Dam. 1-Aquatic Chronic 3; H318-H412

WATER
CAS No.: 7732-18-5
Concentration: 60 - 79%
The substance is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

The product does not contain any relevant amounts of substances that are on the SVHC list.

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Remove contaminated, saturated clothing immediately.
Wash thoroughly the body (shower or bath).
Observe risk of aspiration if vomiting occurs.
When in doubt or if symptoms are observed, get medical advice.

Following inhalation
Provide fresh air.
Consult a doctor immediately in the case of inhaling spray mist and show him packing or label.

In case of skin contact
Wash immediately with:: Water

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.

Following ingestion
Do NOT induce vomiting.
If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Dizziness
Nausea
Gastrointestinal complaints

4.3 Indication of any immediate medical attention and special treatment needed

If unconscious but breathing normally, place in recovery position and seek medical advice.
IF SWALLOWED: Immediately call a POISON CENTER/doctor/....

SECTION 5: Firefighting measures

5.1 Extinguishing media

The product itself does not burn.

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

5.2 Special hazards arising from the substance or mixture

The product itself does not burn.

5.3 Advice for firefighters

Regardless of the admixture of a foam agent, extinguishing water can be heavily contaminated with hazardous substances due to the absorption of fire residues and should therefore, if possible, not enter the sewage system or bodies of water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation.

6.2 Environmental precautions

Cover drains.

Do not allow to enter into soil/subsoil.

Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal.

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

Suitable material for taking up

- Sand
- Sawdust
- Chemical binding agents, containing acids

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

Avoid

- Skin contact
- Eye contact

Wear personal protection equipment (refer to section 8).

Measures to prevent fire

The product is not

- oxidising
- Combustible
- Flammable
- Explosive
- Highly flammable

No special fire protection measures are necessary.

Environmental precautions
Shafts and sewers must be protected from entry of the product.

Advices on general occupational hygiene
When using do not eat, drink, smoke, sniff.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Do not store at temperatures above: +50°C

Requirements for storage rooms and vessels
Suitable container/equipment material
- Refined steel
- Polyethylene (PE)

Unsuitable container/equipment material
- Aluminium
- Light metal
- Copper
- Zinc
- Alloy, containing copper
- Alloy, contains light metal
- Iron.
- Steel

Hints on joint storage
Storage class
- 12: non-combustible liquids that cannot be assigned to any of the above storage classes

7.3 Specific end use(s)

Fire-extinguishing foams based on synthetic surfactants
Do not use for cleaning purposes.

Recommendation
Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Substance name: 1,2-ETHANDIOL
CAS No.: 107-21-1
REACH No.: 01-2119456816-28-XXXX
United Kingdom
Long-term occupational exposure limit value: 20 ppm; Limit value type (country of origin): TWA (EN)
short-term occupational exposure limit value: 40 ppm; Limit value type (country of origin): STEL (EN)
European Union
Long-term occupational exposure limit value: 20 ppm; Limit value type (country of origin): TWA (EC)
short-term occupational exposure limit value: 40 ppm; Limit value type (country of origin): STEL (EC)
Germany
Long-term occupational exposure limit value: 10 ppm; Limit value type (country of origin): AGW (DE)
short-term occupational exposure limit value: 20 ppm; Limit value type (country of origin): Peak (DE)
Ireland
Long-term occupational exposure limit value: 20 ppm; Limit value type (country of origin): TWA (IE)
short-term occupational exposure limit value: 40 ppm; Limit value type (country of origin): STEL (IE)

Substance name: 2-(2-BUTOXYETHOXY)ETHANOL
CAS No.: 112-34-5

REACH No.: 01-2119475104-44-XXXX

United Kingdom

Long-term occupational exposure limit value: 10 ppm; Limit value type (country of origin): TWA (EN)
short-term occupational exposure limit value: 15 ppm; Limit value type (country of origin): STEL (EN)

European Union

Long-term occupational exposure limit value: 10 ppm; Limit value type (country of origin): TWA (EC)
short-term occupational exposure limit value: 15 ppm; Limit value type (country of origin): STEL (EC)

Germany

Long-term occupational exposure limit value: 10 ppm; Limit value type (country of origin): AGW (DE)
short-term occupational exposure limit value: 15 ppm; Limit value type (country of origin): Peak (DE)

Ireland

Long-term occupational exposure limit value: 10 ppm; Limit value type (country of origin): TWA (IE)
short-term occupational exposure limit value: 15 ppm; Limit value type (country of origin): STEL (IE)

8.2 Exposure controls

Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.
Avoid contact with skin, eyes and clothes.
Remove contaminated, saturated clothing.
Wash contaminated clothing prior to re-use.
Wash hands before breaks and after work.
Apply skin care products after work.

Eye/face protection

Suitable eye protection
- Eye glasses with side protection
- goggles
- Face protection shield

Recommended eye protection articles
- EN 166

Hand protection

Suitable gloves type
- Gloves with long cuffs

Suitable material
- NBR (Nitrile rubber)
- Butyl caoutchouc (butyl rubber)

Breakthrough time
- 120 min.

Thickness of the glove material
- > 0.6 mm

Recommended glove articles
- EN ISO 374

Breakthrough times and swelling properties of the material must be taken into consideration.

Body protection

Body protection: not required.

Respiratory protection

Usually no personal respirative protection necessary.

Environmental exposure controls

Store concentrate according to national regulations.
Do not let the concentrate get into the environment.
If possible, hold back the application solution and dispose of after use.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state			:	Liquid	
b)	Colour			:	colourless / yellow	
c)	Odour			:	Glycol, Ether, Surfactant	
d)	Melting point/freezing point			:	-5°C	EN 1568:2018
e)	Boiling point or initial boiling point and boiling range			:	> 100°C	DIN 51751
f)	Flammability			:	not applicable	
g)	Lower and upper explosion limit/flammability limit			:	No data available	
h)	Flash point			:	No flash point up to 100 °C.	
i)	Ignition temperature in °C			:	not applicable	
j)	Decomposition temperature			:	No data available	
k)	pH	at °C	20	:	6,5 - 8,5	DIN 19268
l)	Viscosity	at °C	20	:	< 800(400) mPa*s @ 75(375) 1/s	DIN 53019 structure viscous
		at °C	-5	:	< 1500(750) mPa*s @ 75(375) 1/s	DIN 53019 structure viscous
m)	Solubility			:	Water: completely miscible	OECD 105
n)	Partition coefficient n-octanol/water (log value)			:	not applicable	
o)	Vapour pressure			:	No data available	
p)	Density and/or relative density	at °C	20	:	1,020 - 1,060 g/ml	DIN 12791
q)	Relative vapour density			:	No data available	
r)	particle characteristics			:	not applicable	

9.2 Other information

Information with regard to physical hazard classes

a)	Explosives	:	not applicable
b)	Explosives	:	not applicable
c)	Aerosols	:	not applicable
d)	Oxidising gas	:	not applicable
e)	Gases under pressure	:	not applicable
f)	Flammable liquids	:	not applicable
g)	Flammable solids	:	not applicable
h)	Self-reactive substances and mixtures	:	not applicable
i)	Pyrophoric liquids	:	not applicable
j)	Pyrophoric solids	:	not applicable
k)	Self-heating substances and mixtures	:	not applicable
l)	Substances or mixtures which, in contact with water, emit flammable gases	:	not applicable
m)	Oxidising liquids	:	not applicable
n)	Oxidizing solids	:	not applicable
o)	Organic peroxides	:	not applicable
p)	Corrosive to metals	:	See section 7 of the safety data sheet.
q)	Desensitised explosives	:	not applicable

Other safety characteristics

a)	Mechanical sensitivity	:	not applicable
b)	Self-accelerating polymerisation temperature (SAPT)	:	not applicable
c)	formation of explosible dust/air mixtures	:	not applicable
d)	acid/alkaline reserve	:	not applicable
e)	Evaporation rate	:	No data available
f)	miscibility	:	Water: completely miscible

g)	**Conductivity**	:	~ 6100 µS/cm
h)	**Corrosiveness**	:	Skin corrosion/irritation: none Serious eye damage/irritation: irritant.
i)	**gas group**	:	not applicable
j)	**Redox potential**	:	not applicable
k)	**radical formation potential**	:	not applicable
l)	**photocatalytic properties**	:	not applicable

Additional hazards

Breathing is not possible whilst submerged in the foam. Take care when spraying people!

SECTION 10: Stability and reactivity

10.1 Reactivity

Materials to avoid

Alkali (lye), concentrated
Alkali metals
Acid, concentrated
Oxidising agent, strong
Reducing agent, strong
Acid halides

10.2 Chemical stability

No special measures are necessary.

10.3 Possibility of hazardous reactions

No special measures are necessary.

10.4 Conditions to avoid

Do not store at temperatures above: +50°C

10.5 Incompatible materials

See section 7. No additional measures necessary.

10.6 Hazardous decomposition products

SECTION 11: Toxicological information

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

a) Acute toxicity

Acute oral toxicity

Preparation related information

LD50	> 2000 mg/kg	The acute oral toxicity is corresponding to GHS-category 5.
Species	Rat	
Method	On basis of test data.: OECD 420	

Information on ingredients

1,2-ETHANDIOL:

LD50 (7d) 2310 mg/kg ==>
Harmful if swallowed.
(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

LD50 (14d) 5530 mg/kg ==>
The acute oral toxicity is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

LD50 (14d) > 1650 mg/kg ==>

Harmful if swallowed.

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

LD50 (14d) 2235 mg/kg ==>

The acute oral toxicity is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

Acute dermal toxicity

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

LD50 (14d) > 3500 mg/kg ==>

The acute dermal toxicity is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

LD50 (1d) 2764 mg/kg ==>

The acute dermal toxicity is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

LD50 (14d) > 2000 mg/kg ==>

The acute dermal toxicity is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

LD50 (14d) > 2000 mg/kg ==>

The acute dermal toxicity is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

Acute inhalation toxicity

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

LC50 (6h) > 2,5 mg/L ==>

The acute inhalation toxicity related to vapours is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

NOEC (2h) 29 ppm ==>

The acute inhalation toxicity related to vapours is corresponding to GHS-category 5.

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No data available

Harmful if inhaled.

(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No data available

No information available. No classification in the above-mentioned hazard class

(Source: Safety Data Sheet)

b) Skin corrosion/irritation

Preparation related information

non-irritant.

Species Albino rabbit

Method On basis of test data.: OECD 404

Information on ingredients

1,2-ETHANDIOL:
non-irritant.
(Source: Safety Data Sheet)
2-(2-BUTOXYETHOXY)ETHANOL:
non-irritant.
(Source: Safety Data Sheet)
TRIETHANOLAMMONIUM-LAURYLSULFATE:
Causes skin irritation.
(Source: Safety Data Sheet)
ALKYLAMIDOBETAINE:
non-irritant.
(Source: Safety Data Sheet)

c) Serious eye damage/irritation

Preparation related information

Causes eye irritation.

Species	Albino rabbit
Method	On basis of test data.: OECD 404

Information on ingredients

1,2-ETHANDIOL:
non-irritant.
(Source: Safety Data Sheet)
2-(2-BUTOXYETHOXY)ETHANOL:
Causes serious eye irritation.
(Source: Safety Data Sheet)
TRIETHANOLAMMONIUM-LAURYLSULFATE:
Causes serious eye damage.
(Source: Safety Data Sheet)
ALKYLAMIDOBETAINE:
Causes serious eye damage.
(Source: Safety Data Sheet)

d) Respiratory or skin sensitisation

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:
not sensitising.
(Source: Safety Data Sheet)
2-(2-BUTOXYETHOXY)ETHANOL:
not sensitising.
(Source: Safety Data Sheet)
TRIETHANOLAMMONIUM-LAURYLSULFATE:
not sensitising.
(Source: Safety Data Sheet)
ALKYLAMIDOBETAINE:
not sensitising.
(Source: Safety Data Sheet)

e) Germ cell mutagenicity

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:
No indications of human germ cell mutagenicity exist.
(Source: Safety Data Sheet)
2-(2-BUTOXYETHOXY)ETHANOL:
No indications of human germ cell mutagenicity exist.

(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No indications of human germ cell mutagenicity exist.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No indications of human germ cell mutagenicity exist.
(Source: Safety Data Sheet)

f) Carcinogenicity

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

No indication of human carcinogenicity.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

No indication of human carcinogenicity.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No indication of human carcinogenicity.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No indication of human carcinogenicity.
(Source: Safety Data Sheet)

g) Reproductive toxicity

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

No indications of human reproductive toxicity exist.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

No indications of human reproductive toxicity exist.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No indications of human reproductive toxicity exist.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No indications of human reproductive toxicity exist.
(Source: Safety Data Sheet)

h) STOT-single exposure

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

No known symptoms to date.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

No known symptoms to date.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No known symptoms to date.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No known symptoms to date.
(Source: Safety Data Sheet)

i) STOT-repeated exposure

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

May cause damage to kidneys through prolonged or repeated exposure if swallowed.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

No known symptoms to date.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No known symptoms to date.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No known symptoms to date.
(Source: Safety Data Sheet)

j) Aspiration hazard

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

No known symptoms to date.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

No known symptoms to date.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

No known symptoms to date.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

No known symptoms to date.
(Source: Safety Data Sheet)

11.2 Information on other hazards

Endocrine disrupting properties

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

Other information

Breathing is not possible whilst submerged in the foam. Take care when spraying people!

SECTION 12: Ecological information

12.1 Toxicity

Acute (short-term) fish toxicity

Preparation related information

Effective dose	LC50	: ~ 240	mg/L
Exposure time		: 96 h	
Species		: Leuciscus idus (golden orfe)	
Method		: On basis of test data.: OECD 203	

Information on ingredients

1,2-ETHANDIOL:

LC50 (96h) > 72860 mg/L

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

LC50 (96hr) 1300mg/L

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

LC50 (96h) 5,3 mg/L

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

LC50 (96h) 1,11 mg/L

(Source: ECHA database «Registered substances»)

Acute (short-term) toxicity to aquatic invertebrates

Preparation related information

Effective dose	EC50	: ~ 210	mg/L
Exposure time		: 48 h	
Species		: Daphnia magna (Big water flea)	
Method		: On basis of test data.: OECD 202	

Information on ingredients

1,2-ETHANDIOL:

EC50 (48h) > 13900 mg/L

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

EC50 (48hr) > 1101 mg/L

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

EC50 (48h) 4,2 mg/L

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

EC50 (48h) 1,9 mg/L

(Source: ECHA database «Registered substances»)

Acute (short-term) toxicity to algae and cyanobacteria

Preparation related information

Effective dose	EC50	: ~ 210	mg/L
Exposure time		: 72 h	
Species		: Scenedesmus subspicatus	
Method		: On basis of test data.: OECD 201	

Information on ingredients

1,2-ETHANDIOL:

EC50 (96h) > 6500 mg/L; NOEC (96h) 479 mg/L

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

EC50 (72h) 1 101 mg/L

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

EC50 (72h) 11 mg/L; NOEC (72h) 3 mg/L

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

EC50 (72h) 1,5 mg/L; NOEC (72h) 0,3 mg/L

(Source: ECHA database «Registered substances»)

Effects in sewage plants

Preparation related information

Analytical method : Respiratory inhibition of municipal activated sludge.

500	mg/L	►	Concentration	: 100%	Dilution	: > 2000
16600	mg/L	►	Concentration	: 3%	Dilution	: > 60

Method : On basis of test data.: DIN 38412/part 3 (TTC)

Information on ingredients

1,2-ETHANDIOL:

NOEC (0,5h) > 1995 mg/L

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

NOEC (0,5h) 1995 mg/L

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

EC50 (3h) 135 mg/L

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

NOEC (16h) 3000 mg/L

(Source: ECHA database «Registered substances»)

Technically correct releases of minimal concentrations to adapted biological sewage plants, will not disturb the biodegradability of activated sludge.

The product may lead to foaming in sewage plants.

Remark

Observe local regulations concerning effluent treatment.

Special pre-treatments are necessary.

12.2 Persistence and degradability

Biodegradation

Preparation related information

Readily biodegradable (according to OECD criteria).

Degradation rate : ~ 99%

Test duration : 28 d

Analytical method : BOD (% of COD).

Method : On basis of test data.: OECD 301F

Type : Aerobic biological treatment

Information on ingredients

1,2-ETHANDIOL:

> 90% (10d) OECD 301A

Readily biodegradable (according to OECD criteria).

(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

92% (28d) OECD 301 E

Readily biodegradable (according to OECD criteria).

(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

92% (30d) OECD 301 D

Readily biodegradable (according to OECD criteria).

(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

95% (28d) OECD 201 C

Readily biodegradable (according to OECD criteria).

(Source: ECHA database «Registered substances»)

Chemical oyxgen demand (COD)

~ 488000	mg *O2/L	▶	Concentration	: 100%	Method	DIN EN 38409-H41-1		
~ 14640	mg *O2/L	▶	Concentration	: 3%	Method	DIN EN 38409-H41-1		

Biochemical oxygen demand

~ 170000	mg *O2/L	▶	Concentration	: 100%	Method	DIN EN 1899-1	Test duration	5 d
~ 5100	mg *O2/L	▶	Concentration	: 3%	Method	DIN EN 1899-1	Test duration	5 d

BOD5/COD ratio

35%

12.3 Bioaccumulative potential

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

log Kow -1,36
No indication of bioaccumulation potential.
(Source: ECHA database «Registered substances»)

2-(2-BUTOXYETHOXY)ETHANOL:

log Kow < 3
No indication of bioaccumulation potential.
(Source: ECHA database «Registered substances»)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

log Pow < -0,76
No indication of bioaccumulation potential.
(Source: ECHA database «Registered substances»)

ALKYLAMIDOBETAINE:

BCF < 71
No indication of bioaccumulation potential.
(Source: ECHA database «Registered substances»)

12.4 Mobility in soil

If product enters soil, it will be mobile and may contaminate groundwater.

12.5 Results of PBT and vPvB assessment

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
(Source: Safety Data Sheet)

12.6 Endocrine disrupting properties

Preparation related information

There are no data available on the mixture itself.

Information on ingredients

1,2-ETHANDIOL:

This substance does not have endocrine disrupting properties with respect to humans.

(Source: Safety Data Sheet)

2-(2-BUTOXYETHOXY)ETHANOL:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

TRIETHANOLAMMONIUM-LAURYLSULFATE:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

ALKYLAMIDOBETAINE:

This substance does not have endocrine disrupting properties with respect to humans.
(Source: Safety Data Sheet)

12.7 Other adverse effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Dispose of waste according to applicable legislation.

Waste codes/waste designations according to EWC/AVV

Waste code product

16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
1603	off-specification batches and unused products
160305*	organic wastes containing dangerous substances

Waste code packaging

15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
1501	packaging (including separately collected municipal packaging waste)
150110*	packaging containing residues of or contaminated by dangerous substances

Remark

Delivery to an approved waste disposal company.
Send to a hazardous waste incinerator facility under observation of official regulations.

SECTION 14: Transport information

14.1 UN number or ID number

none

14.2 UN proper shipping name

not applicable

14.3 Transport hazard class(es)

Land transport (ADR/RID)

No dangerous good in sense of these transport regulations.

Inland waterway craft (ADN)

No dangerous good in sense of these transport regulations.

Sea transport (IMDG)

No dangerous good in sense of these transport regulations.

Air transport (ICAO-TI / IATA-DGR)

No dangerous good in sense of these transport regulations.

14.4 Packing group

not applicable

14.5 Environmental hazards

none
Marine pollutant : No

14.6 Special precautions for user

none

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 legislation

Regulation (EC) No. 2037/2000 concerning materials, which cause damage to the ozone layer
not applicable

Regulation (EU) No. 649/2012 of the European parliament and of the council concerning the export and import of dangerous chemicals
not applicable

Directive 96/59/EC (PCB-guideline)
not applicable

Regulation (EC) No. 648/2004 [Detergents regulation]
The surfactant contained in this mixture complies with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents.

Information according to 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline).
Volatile organic compounds (VOC) content in percent by weight:: max. 10

Regulation (EC) No. 842/2006 on certain fluorinated greenhouse gases
not applicable

Regulation (EC) No 2019/1021 [POP/PFOS-Regulation]
The product is manufactured without the intended addition of organofluorine compounds for the purpose of increasing performance and therefore does not contain any amount of organofluorine substances beyond the regional ubiquitous background pollution (e.g. in the drinking water used for production).

Regulation (EC) No 2020/784 [PFOA-Regulation]
The product is manufactured without the intended addition of organofluorine compounds for the purpose of increasing performance and therefore does not contain any amount of organofluorine substances beyond the regional ubiquitous background pollution (e.g. in the drinking water used for production).

Regulation (EC) No 2021/1297 [C9-C14-PFCA-Regulation]
The product is manufactured without the intended addition of organofluorine compounds for the purpose of increasing performance and therefore does not contain any amount of organofluorine substances beyond the regional ubiquitous background pollution (e.g. in the drinking water used for production).

National regulations

Störfallverordnung (12. BImschV)
This product is not classified according to StörfallV.

Water hazard class
slightly hazardous to water (WGK 1)

Self-classification according to AwSV (mixture).

Annex Chemikalien-Verbotsverordnung (ChemVerbotsV)
not applicable

15.2 Chemical Safety Assessment

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

SECTION 16: Other information

The product described in the Safety Data Sheet may only be used for its intended purpose. For exercises please observe the recommendations of the technical committee of BMU/LAMA. The details in this safety data sheet are based on today´s stand of our knowledge and is applicable to the product with regard to appropriate safety precautions. They do not represent any guarantee of the properties of the product and do not establish any legal relationship.

Please refer to our internet website for more information. www.sthamer.com

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.

Classification for the 3%/6% application solution of MOUSSOL-FF 3/6 F-5 #7942:
The information in this safety data sheet only applies to the unchanged product in the delivery condition. An application solution prepared therefrom by diluting it with water as recommended usually has significantly fewer hazardous features due to the dilution principle and can even be unclassified. See also the environmental data sheet provided by us.

Full text of Hazard- and EU Hazard-statements

H302	Harmful if swallowed or if inhaled.
H315	Causes skin and eye irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H373.8	May cause damage to kidneys through prolonged or repeated exposure if swallowed.
H412	Harmful to aquatic life with long lasting effects.

VEILIGHEIDSINFORMATIEBLAD

RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

1.1. Productidentificatie

Handelsnaam of de benaming van het mengsel	Hydrex 1904
Registratienummer	-
Synoniemen	Geen.
Datum van uitgave	19-juli-2015
Versienummer	01

1.2. Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geïdentificeerd gebruik	Boiler Water Steamline Treatment
Ontraden gebruik	Professioneel gebruik

1.3. Details betreffende de verstrekker van het veiligheidsinformatieblad

Verstrekker	VWS NETHERLANDS B.V.
Adres	Celsiusstraat 34, 6716 BZ Ede Postbus 250, 6710 BG Ede NEDERLAND
Contactpersoon	
Telefoonnummer	+ 31 (0)318 691 500
Fax	+ 31 (0)318 691 501
e-mailadres	miranda.bakkeren@veoliawater.com
Global Emergency Contact	+1-760-476-3961 (Code:333239)

RUBRIEK 2: Identificatie van de gevaren

2.1. Indeling van de stof of het mengsel

Het mengsel is beoordeeld en/of getest op zijn fysische, gezondheids- en milieugevaren en de volgende indeling is van toepassing.

Indeling overeenkomstig Richtlijn 67/548/EEG of 1999/45/EG zoals gewijzigd

Indeling	R10, C;R35, Xn;R20/21/22

De volledige tekst van alle R-zinnen wordt weergegeven in Rubriek 16.

Indeling in overeenstemming met Verordening (EG) nr. 1272/2008 zoals gewijzigd

Fysische gevaren		
Ontvlambare vloeistoffen	Categorie 3	H226 - Ontvlambare vloeistof en damp.
Gezondheidsgevaren		
Acute orale toxiciteit	Categorie 4	H302 - Schadelijk bij inslikken.
Acute dermale toxiciteit	Categorie 3	H311 - Giftig bij contact met de huid.
Acute toxiciteit bij inademing	Categorie 4	H332 - Schadelijk bij inademing.
Huidcorrosie/-irritatie	Categorie 1B	H314 - Veroorzaakt ernstige brandwonden en oogletsel.

Samenvatting van de gevaren

Fysische gevaren	Ontvlambaar.
Gezondheidsgevaren	Schadelijk bij inademing, opname door de mond en aanraking met de huid. Veroorzaakt ernstige brandwonden.
Milieugevaren	Niet ingedeeld voor milieugevaren.
Specifieke gevaren	Niet bekend.
Belangrijkste symptomen	Brandende pijn en ernstig bijtend huidletsel. Veroorzaakt ernstig oogletsel. De symptomen kunnen onder andere zijn: steken, scheuren, roodheid, opzwelling en onscherp gezichtsvermogen. Kan leiden tot blijvend oogletsel inclusief blindheid. Hoesten.

2.2. Etiketteringselementen

Etikettering overeenkomstig Verordening (EG) nr. 1272/2008, zoals gewijzigd

Bevat:	Morfoline

Gevarenpictogrammen

Signaalwoord Gevaar

Gevarenaanduidingen

H226	Ontvlambare vloeistof en damp.
H302	Schadelijk bij inslikken.
H311	Giftig bij contact met de huid.
H314	Veroorzaakt ernstige brandwonden en oogletsel.
H332	Schadelijk bij inademing.

Voorzorgsmaatregelen

Preventie

	Voorkom nevel/aërosolen.
P210	Verwijderd houden van warmte, hete oppervlakken, vonken, open vuur en andere ontstekingsbronnen. Niet roken.
P233	In goed gesloten verpakking bewaren.
P240	Opslag- en opvangreservoir aarden.
P241	Explosieveilige elektrische/ventilatie-/verlichtings-/vermenging-/apparatuur gebruiken.
P242	Uitsluitend vonkvrij gereedschap gebruiken.
P243	Voorzorgsmaatregelen treffen tegen ontladingen van statische elektriciteit.
P260	Nevel of damp niet inademen.
P264	Na het werken met dit product handen grondig wassen.
P270	Niet eten, drinken of roken tijdens het gebruik van dit product.
P271	Alleen buiten of in een goed geventileerde ruimte gebruiken.
P280	Beschermende handschoenen/beschermende kleding/oogbescherming/gelaatsbescherming dragen.

Reactie

P301 + P330 + P331	NA INSLIKKEN: de mond spoelen — GEEN braken opwekken.
P303 + P361 + P353	BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen/afdouchen.
P304 + P340	NA INADEMING: de persoon in de frisse lucht brengen en ervoor zorgen dat deze gemakkelijk kan ademen.
P305 + P351 + P338	BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.
P310	Onmiddellijk een ANTIGIFCENTRUM/arts/paramedicus raadplegen.
P321	Specifieke behandeling vereist (zie Eerstehulpmaatregelen op dit etiket).
P361 + P364	Verontreinigde kleding onmiddellijk uittrekken en wassen alvorens deze opnieuw te gebruiken
P370 + P378	

Opslag

	Opslaan op een koele plaats.
P403 + P235	Op een goed geventileerde plaats bewaren. Koel bewaren.
P405	Achter slot bewaren.
P410	Tegen zonlicht beschermen.

Verwijdering

P501	Inhoud/verpakking afvoeren naar een geschikt afvalverwerkingsbedrijf in overeenstemming met van toepassing zijnde wetten en voorschriften, en de kenmerken van het product op het moment van afvoer.

Aanvullende etiketteringsinformatie Geen.

2.3. Andere gevaren Niet bekend.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

3.2. Mengsels

Algemene informatie

Chemische naam	%	CAS-nummer / EG-nummer	REACH-registratienummer	Catalogus nummer	Opmerkingen
Morfoline	70 - < 80	110-91-8 203-815-1	01-2119496057-30-XXXX	613-028-00-9	#

Classificatie: **DSD:** R10, C;R34, Xn;R20/21/22

CLP: Flam. Liq. 3;H226, Acute Tox. 4;H302, Acute Tox. 3;H311, Acute Tox. 4;H312, Skin Corr. 1B;H314, Acute Tox. 4;H332

Andere bestanddelen onder rapporteerbare niveaus 30 - < 40

Lijst van afkortingen en symbolen die hierboven mogelijk worden gebruikt

CLP: Verordening nummer 1272/2008.
DSD: Richtlijn 67/548/EEC.
M: M-factor
zPzB: zeer persistente en zeer bioaccumulerende stof.
PBT: persistente, bioaccumulerende en toxische stof.
#: Voor deze stof is in de Gemeenschap een grenswaarde(n) voor de blootstelling op het werk vastgesteld.

Opmerkingen m.b.t. de samenstelling De volledige tekst van alle R- en S-zinnen wordt weergegeven in Rubriek 16.

RUBRIEK 4: Eerstehulpmaatregelen

Algemene informatie Verontreinigde kleding onmiddellijk uittrekken. Zorg dat medisch personeel op de hoogte is van de betreffende stof(fen), en dat er beschermende voorzorgsmaatregelen getroffen worden. Dit veiligheidsinformatieblad aan de dienstdoende arts tonen. Verontreinigde kleding wassen alvorens deze opnieuw te gebruiken.

4.1. Beschrijving van de eerstehulpmaatregelen

Inhalatie Het slachtoffer in de frisse lucht brengen en laten rusten in een houding die het ademen vergemakkelijkt. Indien nodig zuurstof of kunstmatige ademhaling. Bij onwel voelen een ANTIGIFCENTRUM of een arts raadplegen.

Contact met huid Verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen/afdouchen. Bel onmiddellijk een arts of het Nationaal Vergiftigingen Informatie Centrum. Chemische brandwonden door een arts laten behandelen. Verontreinigde kleding wassen alvorens deze opnieuw te gebruiken.

Contact met ogen Spoel de ogen onmiddellijk met veel water, gedurende minstens 15 minuten. Eventuele contactlenzen verwijderen, indien dit gemakkelijk kan gebeuren. Blijven spoelen. Bel onmiddellijk een arts of het Nationaal Vergiftigingen Informatie Centrum.

Inslikken Bel onmiddellijk een arts of het Nationaal Vergiftigingen Informatie Centrum. De mond spoelen. GEEN braken opwekken. Bij braken het hoofd laag houden, zodat de maaginhoud niet in de longen kan komen.

4.2. Belangrijkste acute en uitgestelde symptomen en effecten Brandende pijn en ernstig bijtend huidletsel. Veroorzaakt ernstig oogletsel. De symptomen kunnen onder andere zijn: steken, scheuren, roodheid, opzwelling en onscherp gezichtsvermogen. Kan leiden tot blijvend oogletsel inclusief blindheid. Hoesten.

4.3. Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling Zorg voor algemene ondersteunende maatregelen en behandel symptomatisch. Verbranding: Onmiddellijk spoelen met water. Verwijder tijdens het spoelen kleding die niet is vastgebrand. Laat een ambulance komen. Ga tijdens het vervoer door met spoelen. Chemische brandwonden: Onmiddellijk spoelen met water. Verwijder tijdens het spoelen kleding die niet is vastgebrand. Laat een ambulance komen. Ga tijdens het vervoer door met spoelen. Houd het slachtoffer warm. Houd slachtoffer onder observatie. De symptomen kunnen met vertraging optreden.

RUBRIEK 5: Brandbestrijdingsmaatregelen

Algemene brandrisico's Ontvlambare vloeistof en damp.

5.1. Blusmiddelen

Geschikte blusmiddelen Alcoholbestendig schuim. Waternevel. Droog chemisch poeder. Kooldioxide (CO_2).

Ongeschikte blusmiddelen Niet beschikbaar.

5.2. Speciale gevaren die door de stof of het mengsel worden veroorzaakt De dampen kunnen met lucht kunnen dampen een ontplofbaar mengsel vormen. Dampen kunnen aanzienlijke afstanden afleggen naar een ontstekingsbron en een vlam doen terugslaan. Bij brand kunnen vergiftige gassen optreden.

5.3. Advies voor brandweerlieden

Speciale beschermende uitrusting voor brandweerlieden Draag aparte ademhalingsapparatuur en volledig beschermende kleding in geval van brand.

Speciale brandbestrijdingsprocedures	In geval van brand en/of explosie inademen van rook vermijden. De containers van de brand verwijderen indien u geen gevaar loopt.
Specifieke methoden	Standaard brandbestrijdingsprocedures toepassen en rekening houden met de gevaren die de overige betrokken materialen kunnen opleveren.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

6.1. Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures

Voor andere personen dan de hulpdiensten	Houd overbodig personeel uit de buurt. Omstanders op afstand en bovenwinds houden van gemorst materiaal/lek. Elimineer alle ontstekingsbronnen (niet roken, geen fakkels, vonken of vuur in de directe omgeving). Draag tijdens het schoonmaken geschikte beschermingsmiddelen en beschermende kleding. Nevel of damp niet inademen. Beschadigde containers of gemorste stof niet aanraken tenzij een passende beschermende kleding gedragen wordt. Afgesloten ruimten ventileren alvorens deze te betreden. Bij aanzienlijke lekken die niet kunnen worden ingedamd moet de lokale overheid worden ingelicht. Voor informatie over persoonlijke bescherming zie punt 8.
Voor de hulpdiensten	Houd overbodig personeel uit de buurt. Draag tijdens het schoonmaken geschikte beschermingsmiddelen en beschermende kleding. Gebruik persoonlijke beschermingsmiddelen zoals aanbevolen in rubriek 8 van het veiligheidsinformatieblad.
6.2. Milieuvoorzorgsmaatregelen	Vermijd afvoer naar riool, grond en aquatisch milieu.
6.3. Insluitings- en reinigingsmethoden en -materiaal	Elimineer alle ontstekingsbronnen (niet roken, geen fakkels, vonken of vuur in de directe omgeving). Voorzorgsmaatregelen treffen tegen ontladingen van statische elektriciteit. Uitsluitend vonkvrij gereedschap gebruiken. Brandbare materialen (hout, papier, olie, enz.) uit de buurt van de gemorste stof houden. Grote gemorste hoeveelheden: Stop de stroom van het materiaal, als dit zonder risico mogelijk is. Water verstuiven om de hoeveelheid dampen te verminderen of een dampwolk af te leiden. Dijk waar mogelijk het gemorste materiaal in. Gebruik niet-brandbare materialen zoals vermiculiet, zand of aarde om het product op te nemen en plaats het in een container voor latere verwijdering. Na recuperatie van de stof, de omgeving met water spoelen. Kleine gemorste hoeveelheden: Opnemen met aarde, zand of ander niet-brandbaar materiaal en overbrengen in containers voor latere verwijdering. Opnemen met absorberend materiaal (bv. doek, vlies). Maak het oppervlak grondig schoon om resterende besmetting te verwijderen. Gemorst materiaal nooit in de originele verpakking terugdoen om opnieuw te gebruiken.
6.4. Verwijzing naar andere rubrieken	Voor informatie over persoonlijke bescherming zie punt 8. Zie paragraaf 13 voor informatie over verwijdering.

RUBRIEK 7: Hantering en opslag

7.1. Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel	Voorkom nevel/aërosolen. Niet behandelen, opslaan of openen in de omgeving van een open vlam, warmtebronnen en ontstekingsbronnen. De stof tegen rechtstreeks invallend zonlicht afschermen. Ontploffingsbestendige algemene en plaaselijke afzuigventilatie. Maatregelen treffen tegen ontladingen van statische elektriciteit. De uitrusting waarmee het product behandeld worden moet geaard worden. Vonkvrij gereedschap en explosievaste uitrusting gebruiken. Nevel of damp niet inademen. Contact met de ogen, de huid of de kleding vermijden. Vermijd langdurige blootstelling. Niet proeven of inslikken. Niet eten, drinken of roken tijdens gebruik. Alleen buiten of in een goed geventileerde ruimte gebruiken. De vereiste beschermende uitrusting dragen. Na het werken met dit product de handen grondig wassen. Verontreinigde kleding wassen alvorens deze opnieuw te gebruiken. Volg de juiste chemisch-hygiënische voorschriften.
7.2. Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten	Weghouden van hitte, vonken en open vuur. Voorkom opbouw van elektrostatische lading door reguliere bevestigings- en aardingstechnieken te gebruiken. Opslaan op een koele, droge plek weg van direct zonlicht. Opslaan in de oorspronkelijke, goed gesloten container. Op een goed geventileerde plaats bewaren. Bewaren in een ruimte voorzien van een blusinstallatie. Bewaren verwijderd van onverenigbare materialen (zie Rubriek 10 van het veiligheidsinformatieblad).
7.3. Specifiek eindgebruik	Niet beschikbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

8.1. Controleparameters

Grenswaarden voor beroepsmatige blootstelling

Nederland. Grenswaarde voor beroepsmatige blootstelling (Occupational Exposure Limit, OEL) (bindend)

Bestanddelen	Type	Waarde
Morfoline (CAS 110-91-8)	TGG 15 min.	72 mg/m3
	TGG 8 u	36 mg/m3

EU. Indicatieve blootstellingsgrenswaarden in Richtlijnen 91/322/EEG, 2000/39/EG, 2006/15/EG, 2009/161/EU

Bestanddelen	Type	Waarde
Morfoline (CAS 110-91-8)	TGG 15 min.	72 mg/m3 20 ppm
	TGG 8 u	36 mg/m3 10 ppm

Biologische grenswaarden Geen biologische blootstellingsgrenswaarden vastgesteld voor de bestanddelen.

Aanbevolen monitoringprocedures Volg de standaard monitoringprocedures.

Afgeleide dosis zonder effect (derived no-effect level – DNEL) Niet beschikbaar.

Voorspelde concentraties zonder effect (predicted no-effect concentrations – PNECs) Niet beschikbaar.

Blootstellingsrichtlijnen

Nederlandse OEL's (grenswaarden voor beroepsmatige blootstelling) (bindend): Huidnotatie

Morfoline (CAS 110-91-8) Kan door de huid worden opgenomen.

8.2. Maatregelen ter beheersing van blootstelling

Passende technische maatregelen Ontploffingsbestendige algemene en plaaselijke afzuigventilatie. Er moet een goede algehele ventilatie worden gebruikt (gewoonlijk 10 luchtverversingen per uur). Ventiliatiesnelheden moeten zijn aangepast aan de omstandigheden. Gebruik, indien van toepassing, afgesloten procesruimten, plaatselijke afzuiging of andere technische middelen om de concentraties in de lucht onder de aanbevolen blootstellingslimieten te houden. Wanneer er geen blootstellingslimieten zijn vastgesteld, houd dan de concentraties in de lucht op een aanvaardbaar niveau. Bij hantering van dit product moeten oogspoelstation en een oogdouche voor noodgevallen beschikbaar zijn.

Individuele beschermingsmaatregelen, zoals persoonlijke beschermingsmiddelen

Algemene informatie Draag een chemische beschermende uitrusting die specifiek door de fabrikant wordt aanbevolen. Persoonlijke beschermingsmiddelen overeenkomstig CEN-normering en in overleg met de leverancier van persoonlijke beschermingsmiddelen.

Bescherming van de ogen/het gezicht Draag een veiligheidsbril met zijkleppen (of een veiligheidsstofbril) en een gelaatsscherm. Chemische beschermbril en gelaatsscherm worden aanbevolen. Een gelaatsscherm wordt aanbevolen. Voor enige handeling, draag beschermende bril met zijschermen die voldoen aan de NF EN 166.

Bescherming van de huid

- Bescherming van de handen Chemicaliënbestendige handschoenen worden aanbevolen.

- Andere maatregelen Geschikte chemisch-resistente kleding dragen. Het gebruik van een ondoorlatend schort wordt aanbevolen. Chemicaliënbestendige handschoenen worden aanbevolen.

Bescherming van de ademhalingswegen Indien technische middelen de concentraties in de lucht niet onder de aanbevolen blootstellingslimieten (waar van toepassing) houden, of op een aanvaardbaar niveau (in landen waar geen blootstellingslimieten zijn vastgesteld) moet een goedgekeurd adembeschermingsmasker worden gedragen. Voorkom nevel/aërosolen.

Thermische gevaren Draag geschikte thermische beschermende kleding, wanneer noodzakelijk.

Hygiënische maatregelen Tijdens het gebruik van het product niet roken. Verwijderd houden van voedingswaren en drank. Te allen tijde een goede persoonlijke hygiëne in acht nemen: zich wassen na behandeling van de stof en voor men gaat eten, drinken en/of roken. De werkkledij en de beschermingsmiddelen regelmatig wassen om de verontreinigingen te verwijderen.

Beheersing van milieublootstelling Bij elk omvangrijk ongewild vrijkomen dient de manager voor veiligheid en milieu te worden ingelicht.

RUBRIEK 9: Fysische en chemische eigenschappen

9.1. Informatie over fysische en chemische basiseigenschappen

Voorkomen Olieachtig. Vloeistof.

Fysische toestand Vloeistof.

Vorm Vloeistof.

Kleur Helder.

Geur Zoals amines.

pH 11,8

Smelt-/vriespunt	< -20 °C (< -4 °F)
Beginkookpunt en kooktraject	> 100 °C (> 212 °F)
Vlampunt	32,0 °C (89,6 °F)
Ontvlambaarheid (vast, gas)	Niet van toepassing.
Bovenste/onderste ontvlambaarheids- of explosiegrenswaarden	
Onderste ontvlambaarheidsgrenswaarde (%)	1,8 %
Bovenste ontvlambaarheidsgrenswaarde (%)	11,2 %
Dampspanning	Niet beschikbaar.
Oplosbaarheid	
Oplosbaarheid (water)	Voltooid
Oplosbaarheid (overig)	Niet beschikbaar.
Verdelingscoëfficiënt (n-octanol/water)	Niet beschikbaar.
Viscositeit	Niet beschikbaar.
9.2. Overige informatie	
Dichtheid	1,02 - 1,06 g/cm3
Soortelijk gewicht	1,02 - 1,06

RUBRIEK 10: Stabiliteit en reactiviteit

10.1. Reactiviteit	Reageert heftig met sterke zuren. Dit product kan met oxidatiemiddelen reageren.
10.2. Chemische stabiliteit	In normale omstandigheden is de stof stabiel.
10.3. Mogelijke gevaarlijke reacties	Onder normale gebruiksomstandigheden zijn geen gevaarlijke reacties waargenomen.
10.4. Te vermijden omstandigheden	Warmte, vonken, open vlammen en andere ontstekingsbronnen vermijden. Vermijd temperaturen boven het vlampunt. Niet mengen met andere chemische stoffen. Contact met onverenigbare materialen.
10.5. Chemisch op elkaar inwerkende materialen	Sterke zuren. Zuren. Sterke oxidatiemiddelen. Oxiderende middelen.
10.6. Gevaarlijke ontledingsproducten	Bij thermische afbraaktemperaturen, koolmonoxide en kooldioxide. Stikstof verbindingen.

RUBRIEK 11: Toxicologische informatie

Algemene informatie	Beroepsmatige blootstelling aan de stof of het mengsel kan schadelijke effecten veroorzaken
Informatie over waarschijnlijke blootstellingsrouten	
Inhalatie	Schadelijk bij inademing.
Contact met huid	Giftig bij contact met de huid. Kan ernstige brandwonden van de huid veroorzaken.
Contact met ogen	Veroorzaakt ernstig oogletsel.
Inslikken	Veroorzaakt brandwonden in het maagdarmkanaal. Schadelijk bij inslikken.
Symptomen	Brandende pijn en ernstig bijtend huidletsel. Veroorzaakt ernstig oogletsel. De symptomen kunnen onder andere zijn: steken, scheuren, roodheid, opzwelling en onscherp gezichtsvermogen. Kan leiden tot blijvend oogletsel inclusief blindheid. Hoesten.

11.1. Informatie over toxicologische effecten

Acute toxiciteit	Giftig bij contact met de huid. Schadelijk bij inademing. Schadelijk bij inslikken.

Product	**Soorten**	**Testresultaten**
Hydrex 1904		
Acuut		
Huid		
LD50	Konijn	<= 1 ml/kg Berekend
Oraal		
LD50	Rat	1,5 g/kg Berekend

Bestanddelen	Soorten	Testresultaten
Morfoline (CAS 110-91-8)		
Acuut		
Huid		
LD50	Konijn	0,5 ml/kg
Inhalatie		
LD50	Konijn	900 mg/kg
Oraal		
LD50	Cavia	0,09 g/kg
	Muis	720 mg/kg
	Rat	1900 mg/kg
		1,05 g/kg

* Schattingen voor het product kunnen zijn gebaseerd op aanvullende gegevens van bestanddelen die niet zijn weergegeven.

Huidcorrosie/-irritatie	Veroorzaakt ernstige brandwonden en oogletsel.
Ernstig oogletsel/oogirritatie	Veroorzaakt ernstig oogletsel.
Sensibilisatie van de luchtwegen	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Sensibilisatie van de huid	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Mutageniteit in geslachtscellen	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Kankerverwekkendheid	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken

IARC Monografie. Algehele evaluatie van carcinogeniteit

Morfoline (CAS 110-91-8)	3 Niet classificeerbaar met betrekking tot carcinogeniciteit voor mensen.

Giftigheid voor de voortplanting	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Specifieke doelorgaantoxiciteit bij eenmalige blootstelling	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Specifieke doelorgaantoxiciteit bij herhaalde blootstelling	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Gevaar bij inademing	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken
Informatie over het mengsel versus informatie over de stof	Geen informatie beschikbaar.
Overige informatie	Niet beschikbaar.

RUBRIEK 12: Ecologische informatie

12.1. Toxiciteit Het product is niet geclassificeerd als gevaarlijk voor het milieu. Desondanks kan het morsen van grote hoeveelheden of het regelmatig morsen van kleinere hoeveelheden een schadelijk effect hebben op het milieu.

Product		Soorten	Testresultaten
Hydrex 1904			
Aquatisch			
Acuut			
Vis	LC50	Vis	>= 350 mg/l, 96 uren Berekend

Bestanddelen		Soorten	Testresultaten
Morfoline (CAS 110-91-8)			
Aquatisch			
Kreeftachtigen	EC50	Watervlo (Daphnia magna)	112 - 127 mg/l, 24 uren
Vis	LC50	Blauwkeel zonnebaars (Lepomis macrochirus)	350 mg/l, 96 uren
		Muskietenvisje (Gambusia affinis)	320 - 560 mg/l, 96 uren
		Regenboogforel (Oncorhynchus mykiss)	375 - 460 mg/l, 96 uren

Bestanddelen	Soorten	Testresultaten
	Zebra danio (Danio rerio)	> 1 mg/l, 96 uren

* Schattingen voor het product kunnen zijn gebaseerd op aanvullende gegevens van bestanddelen die niet zijn weergegeven.

12.2. Persistentie en afbreekbaarheid Er zijn geen gegevens over de afbreekbaarheid van het product beschikbaar.

12.3. Bioaccumulatie

Verdelingscoëfficiënt n-octanol/water (log Kow)

Morfoline -0,86

Bioconcentratiefactor (BCF) Niet beschikbaar.

12.4. Mobiliteit in de bodem Geen gegevens beschikbaar.

12.5. Resultaten van PBT- en zPzB-beoordeling Niet beschikbaar.

12.6. Andere schadelijke effecten Van dit bestanddeel worden geen andere nadelige milieueffecten (bijv. afbraak van de ozonlaag, het vermogen op fotochemische wijze ozon te vormen, endocriene disruptie, het vermogen tot opwarming van de aarde) verwacht.

RUBRIEK 13: Instructies voor verwijdering

13.1. Afvalverwerkingsmethoden

Restafval Verwijderen volgens plaatselijke voorschriften. Lege containers of goederenschepen/-treinen kunnen resten van het product bevatten. Dit product en bijbehorende container/vat/verpakking moeten op een veilige manier worden afgevoerd (zie Instructies voor verwijdering).

Verontreinigde verpakking Lege containers moeten worden afgevoerd naar een erkende afvalverwerkingscentrale voor hergebruik of verwijdering. Neem ook wanneer de verpakking leeg is de waarschuwingen op het etiket in acht, omdat lege verpakkingen residuen kunnen bevatten.

EU-afvalcode De afvalcode moet worden toegekend in overleg met de gebruiker, de fabrikant en het verwijderingsbedrijf.

Verwijderingsmethoden / informatieover verwijdering Verzamelen en opnieuw gebruiken, of in afgesloten houders naar daartoe bevoegde afvalverzamelplaatsen brengen. Inhoud/verpakking afvoeren overeenkomstig de plaatselijke/regionale/nationale/internationale voorschriften.

Speciale voorzorgsmaatregelen Afvoeren volgens alle toepasselijke wettelijke voorschriften.

RUBRIEK 14: Informatie met betrekking tot het vervoer

ADR

14.1. VN-nummer UN2054

14.2. Juiste ladingnaam overeenkomstig de modelreglementen van de VN MORFOLINE

14.3. Transportgevarenklasse(n)

Klasse 8

Secundair risico 3

Label(s) 8
+3

ADR cijfer 883

Tunnelbeperkingscode D/E

14.4. Verpakkingsgroep I

14.5. Milieugevaren Nee.

14.6. Bijzondere voorzorgen voor de gebruiker Lees voor gebruik de veiligheidsinstructies, het veiligheidsinformatieblad en de noodprocedures.

RID

14.1. VN-nummer UN2054

14.2. Juiste ladingnaam overeenkomstig de modelreglementen van de VN MORFOLINE

14.3. Transportgevarenklasse(n)

Klasse 8

Secundair risico 3

Label(s)	8+3
14.4. Verpakkingsgroep	I
14.5. Milieugevaren	Nee.
14.6. Bijzondere voorzorgen voor de gebruiker	Lees voor gebruik de veiligheidsinstructies, het veiligheidsinformatieblad en de noodprocedures.

ADN

14.1. VN-nummer	UN2054
14.2. Juiste ladingnaam overeenkomstig de modelreglementen van de VN	Morfoline
14.3. Transportgevarenklasse(n)	
Klasse	8
Secundair risico	3
Label(s)	8+3
14.4. Verpakkingsgroep	I
14.5. Milieugevaren	Nee.
14.6. Bijzondere voorzorgen voor de gebruiker	Lees voor gebruik de veiligheidsinstructies, het veiligheidsinformatieblad en de noodprocedures.

IATA

14.1. UN number	UN2054
14.2. UN proper shipping name	Morpholine
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	3
14.4. Packing group	I
14.5. Environmental hazards	No.
ERG Code	8F
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

14.1. UN number	UN2054
14.2. UN proper shipping name	MORPHOLINE
14.3. Transport hazard class(es)	
Class	8
Subsidiary risk	3
14.4. Packing group	I
14.5. Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-C
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

14.7. Vervoer in bulk overeenkomstig bijlage II bij MARPOL 73/78 en de IBC-code	Niet vastgesteld.

ADN; ADR; IATA; IMDG; RID

RUBRIEK 15: Regelgeving

15.1. Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

EU-verordeningen

Verordening (EG) Nr. 1005/2009 betreffende de ozonlaag afbrekende stoffen, Bijlage I

Niet vermeld.

Verordening (EG) Nr. 1005/2009 betreffende de ozonlaag afbrekende stoffen, Bijlage II

Niet vermeld.

Verordening (EG) Nr. 850/2004 betreffende persistente organische verontreinigende stoffen, Bijlage I, als geamendeerd

Niet vermeld.

Verordening (EG) Nr. 689/2008 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage I, deel 1, als geamendeerd

Niet vermeld.

Verordening (EG) Nr. 689/2008 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage I, deel 2, als geamendeerd

Niet vermeld.

Verordening (EG) Nr. 689/2008 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage I, deel 3, als geamendeerd

Niet vermeld.

Verordening (EG) Nr. 689/2008 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage V, als geamendeerd

Niet vermeld.

Verordening (EG) Nr. 166/2006 Bijlage II Register inzake de uitstoot en overbrenging van verontreinigende stoffen

Niet vermeld.

Verordening (EG) Nr. 1907/2006 REACH Artikel 59(10) Kandidaatslijst als op het ogenblik gepubliceerd door de ECHA

Niet vermeld.

Autorisaties

Verordening (EG) nr. 1907/2006 REACH Bijlage XIV Lijst van autorisatieplichtige stoffen, zoals gewijzigd

Niet vermeld.

Beperkingen voor het gebruik

Verordening (EG) Nr. 1907/2006 REACH Bijlage XVII Stoffen die onderhevig zijn aan beperkingen met betrekking tot marketing en gebruik als geamendeerd

Niet vermeld.

**Richtlijn 2004/37/EG betreffende de bescherming van de werknemers tegen de risico's van blootstelling aan carcinogene
of mutagene agentia op het werk**

Niet vermeld.

Richtlijn 92/85/EEG (Seveso II) betreffende de beheersing van de gevaren van zware ongevallen waarbij gevaarlijke stoffen zijn betrokken.

Niet vermeld.

Andere EU-voorschriften

Richtlijn 96/82/EEG (Seveso II) betreffende de beheersing van de gevaren van zware ongevallen waarbij gevaarlijke stoffen zijn betrokken

Niet vermeld.

Richtlijn 98/24/EG betreffende de bescherming van de gezondheid en de veiligheid van werknemers tegen risico's van chemische agentia op het werk

Morfoline (CAS 110-91-8)

Richtlijn 94/33/EG betreffende de bescherming van jongeren op het werk

Morfoline (CAS 110-91-8)

Overige regelgeving	Het product wordt ingedeeld en geetiketteerd overeenkomstig de EG richtlijnen of de respectievelijke nationale wetten. Dit Veiligheidsinformatieblad voldoet aan de voorschriften van Richtlijn (EC) No 1907/2006.
Nationale voorschriften	Het is niet toegestaan aan personen jonger dan 18 jaar om met dit product te werken, in overeenstemming met EU-Richtlijn 94/33/EC betreffende de bescherming van jongeren op het werk. Volg de nationale regelgeving bij het werken met chemische middelen.
15.2. Chemischeveiligheidsbeoordeling	Er is geen chemische veiligheidsbeoordeling uitgevoerd.

RUBRIEK 16: Overige informatie

Lijst van afkortingen en acroniemen	Niet beschikbaar.
Referenties	Niet beschikbaar.
Informatie over evaluatiemethode leidend tot de indeling van het mengsel	De indeling voor gezondheids- en milieugevaren komt tot stand via een combinatie van rekenmethoden en testgegevens, indien beschikbaar.
De volledige tekst van alle waarschuwingen of R-zinnen en H-gevarenaanduidingen in de Paragrafen 2 tot en met 15	R10 Ontvlambaar. R20/21/22 Schadelijk bij inademing, opname door de mond en aanraking met de huid. R34 Veroorzaakt brandwonden. R35 Veroorzaakt ernstige brandwonden. H226 Ontvlambare vloeistof en damp. H302 Schadelijk bij inslikken. H311 Giftig bij contact met de huid. H312 Schadelijk bij contact met de huid. H314 Veroorzaakt ernstige brandwonden en oogletsel. H332 Schadelijk bij inademing.
Revisie-informatie	Identificatie van product en bedrijf: Productbeoordeling SAMENSTELLING EN INFORMATIE OVER DE BESTANDDELEN: Bestanddelen Fysische en chemische eigenschappen: Meerdere eigenschappen Toxicologische informatie: Toxicologische gegevens Milieu-informatie: Ecotoxiciteit Informatie met betrekking tot het vervoer: Product Shipping Name/Packing Group GHS: Indeling
Trainingsinformatie	Volg de trainingsinstructies bij de hantering van dit materiaal.
Disclaimer	Veolia Water Solutions & Technologies is niet in staat te anticiperen op alle omstandigheden waaronder deze informatie en haar product, of de producten van andere fabrikanten in combinatie met haar product, mogelijk worden gebruikt. Het is de verantwoordelijkheid van de gebruiker om te zorgen voor veilige omstandigheden tijdens hantering, opslag en afvoer van het product, en om aansprakelijkheid te aanvaarden voor verlies, letsel, schade of kosten als gevolg van onjuist gebruik en/of het niet respecteren van de eisen van Veolia Water Solutions & Technologies.

VEILIGHEIDSINFORMATIEBLAD

RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

1.1. Productidentificatie

Handelsnaam of de benaming van het mengsel	HYDREX 1992
Registratienummer	-
Synoniemen	Geen.
Datum van uitgave	26-September-2013
Versienummer	04
Revisiedatum	23-December-2019
Datum van vervanging	08-Augustus-2018

1.2. Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geïdentificeerd gebruik	Ketelwaterbehandeling
Ontraden gebruik	Alleen voor professioneel gebruik Industriële toepassingen worden gebruikt

1.3. Details betreffende de verstrekker van het veiligheidsinformatieblad

Verstrekker	Veolia Water Technologies Netherlands B.V.
Adres	Celsiusstraat 34, Postbus 250, 6710BG Ede Gld 6716BZ EDE GLD Nederland
Contactpersoon	
Telefoonnummer	+ 31 (0)318 691 500
Fax	+ 31 (0)318 691 501
e-mailadres	info.nl@veolia.com
Nationaal noodnummer:	030 274 88 88 Uitsulitend bestemd om professionele hulpverleners te informeren bij acute vergifigingen
Global Emergency Contact	+1-760-476-3961 (Code:333239)

RUBRIEK 2: Identificatie van de gevaren

2.1. Indeling van de stof of het mengsel

Het mengsel is beoordeeld en/of getest op zijn fysische, gezondheids- en milieugevaren en de volgende indeling is van toepassing.

Indeling in overeenstemming met Verordening (EG) nr. 1272/2008 zoals gewijzigd

Gezondheidsgevaren

Sensibilisatie van de huid	Categorie 1B	H317 - Kan een allergische huidreactie veroorzaken.

Samenvatting van de gevaren Kan een allergische huidreactie veroorzaken.

2.2. Etiketteringselementen

Etikettering overeenkomstig Verordening (EG) nr. 1272/2008 zoals gewijzigd

Bevat: CARBOHYDRAZIDE

Gevarenpictogrammen

Signaalwoord Waarschuwing

Gevarenaanduidingen

H317	Kan een allergische huidreactie veroorzaken.

Veiligheidsaanbevelingen

Preventie

P272	Verontreinigde werkkleding mag de werkruimte niet verlaten.

P280	Beschermende handschoenen dragen.
Reactie	
P302 + P352	BIJ CONTACT MET DE HUID: met veel water wassen.
P333 + P313	Bij huidirritatie of uitslag: een arts raadplegen.
P362 + P364	Verontreinigde kleding uittrekken en wassen alvorens deze opnieuw te gebruiken.
Opslag	Verwijderd houden van onverenigbare stoffen.
Verwijdering	
P501	Inhoud/verpakking afvoeren overeenkomstig de plaatselijke/regionale/nationale/internationale voorschriften.
Aanvullende etiketteringsinformatie	Geen.
2.3. Andere gevaren	Niet bekend.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

3.2. Mengsels

Algemene informatie

Chemische naam	%	CAS-nummer / EG-nummer	REACH-registratienummer	Catalogusnummer	Noten
CARBOHYDRAZIDE	10 - < 25	497-18-7 207-837-2	01-2119965166-31-XXXX	-	
Classificatie:	Acute Tox. 4;H302, Skin Irrit. 2;H315, Skin Sens. 1;H317, Skin Sens. 1B;H317, Aquatic Chronic 2;H411				
Andere bestanddelen onder rapporteerbare niveaus	90 - 100				

Lijst van afkortingen en symbolen die hierboven mogelijk worden gebruikt

#: Voor deze stof zijn in de Unie grenzen voor de blootstelling op het werk vastgesteld.
M: M-factor
PBT: persistente, bioaccumulerende en toxische stof.
zPzB: zeer persistente en zeer bioaccumulerende stof.
Alle concentraties worden uitgedrukt in massaprocent, tenzij het een gas betreft. Gasconcentraties worden uitgedrukt in volumeprocent.

Opmerkingen m.b.t. de samenstelling De volledige tekst van alle H-zinnen wordt weergegeven in rubriek 16.

RUBRIEK 4: Eerstehulpmaatregelen

Algemene informatie Zorg dat medisch personeel op de hoogte is van de betreffende stof(fen), en dat er beschermende voorzorgsmaatregelen getroffen worden. Verontreinigde kleding wassen alvorens deze opnieuw te gebruiken.

4.1. Beschrijving van de eerstehulpmaatregelen

Inhalatie	In de frisse lucht plaatsen. Raadpleeg een arts als de symptomen zich ontwikkelen of aanhouden.
Contact met huid	Verontreinigde kleding onmiddellijk verwijderen en de huid wassen met water en zeep. Bij eczeem of andere huidklachten: ga naar een arts en neem het informatieblad mee.
Contact met ogen	Met water afspoelen. Wanneer irritatie ontstaat en aanhoudt, dient u medische hulp in te roepen.
Inslikken	De mond spoelen. Zoek medische hulp als de symptomen optreden.
4.2. Belangrijkste acute en uitgestelde symptomen en effecten	Kan een allergische huidreactie veroorzaken. Dermatitis. Uitslag.
4.3. Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling	Zorg voor algemene ondersteunende maatregelen en behandel symptomatisch. Houd slachtoffer onder observatie. De symptomen kunnen met vertraging optreden.

RUBRIEK 5: Brandbestrijdingsmaatregelen

Algemene brandrisico's Geen uitzonderlijke brand- of ontploffingsgevaren vermeld.

5.1. Blusmiddelen

Geschikte blusmiddelen	Waternevel. Schuim. Droog chemisch poeder. Kooldioxide (CO_2).
Ongeschikte blusmiddelen	Niet beschikbaar.

5.2. Speciale gevaren die door de stof of het mengsel worden veroorzaakt	Bij brand kunnen vergiftige gassen optreden.

5.3. Advies voor brandweerlieden

Speciale beschermde uitrusting voor brandweerlieden	Draag aparte ademhalingsapparatuur en volledig beschermende kleding in geval van brand.
Speciale brandbestrijdingsprocedures	De containers van de brand verwijderen indien u geen gevaar loopt.
Specifieke methoden	Standaard brandbestrijdingsprocedures toepassen en rekening houden met de gevaren die de overige betrokken materialen kunnen opleveren.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

6.1. Persoonlijke voorzorgsmaatregelen, beschermingsmiddelen en noodprocedures

Voor andere personen dan de hulpdiensten	Houd overbodig personeel uit de buurt. Omstanders op afstand en bovenwinds houden van gemorst materiaal/lek. Draag tijdens het schoonmaken geschikte beschermingsmiddelen en beschermende kleding. Inademing van nevel of damp vermijden. Beschadigde containers of gemorste stof niet aanraken tenzij een passende beschermende kleding gedragen wordt. Zorg voor voldoende ventilatie. Bij aanzienlijke lekken die niet kunnen worden ingedamd moet de lokale overheid worden ingelicht. Raadpleeg rubriek 8 van het veiligheidsinformatieblad voor persoonlijke beschermingsmiddelen.
Voor de hulpdiensten	Houd overbodig personeel uit de buurt. Persoonlijke beschermingsmiddelen gebruiken zoals aanbevolen in Rubriek 8 van het veiligheidsinformatieblad.
6.2. Milieuvoorzorgsmaatregelen	Vermijd afvoer naar riool, grond en aquatisch milieu.
6.3. Insluitings- en reinigingsmethoden en -materiaal	Dit product is met water mengbaar. Grote gemorste hoeveelheden: Stop de stroom van het materiaal, als dit zonder risico mogelijk is. Dijk waar mogelijk het gemorste materiaal in. Absorberen in vermiculiet, droog zand of aarde en in houders deponeren. Na recuperatie van de stof, de omgeving met water spoelen. Kleine gemorste hoeveelheden: Opnemen met absorberend materiaal (bv. doek, vlies). Maak het oppervlak grondig schoon om resterende besmetting te verwijderen. Gemorst materiaal nooit in de originele verpakking terugdoen om opnieuw te gebruiken. Raadpleeg rubriek 13 van het veiligheidsinformatieblad voor afvalverwijdering.
6.4. Verwijzing naar andere rubrieken	Raadpleeg rubriek 8 van het veiligheidsinformatieblad voor persoonlijke beschermingsmiddelen. Raadpleeg rubriek 13 van het veiligheidsinformatieblad voor afvalverwijdering.

RUBRIEK 7: Hantering en opslag

7.1. Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel	Voorkom nevel/aërosolen. Inademing van nevel of damp vermijden. Vermijd contact met ogen, huid en kleding. Zorg voor voldoende ventilatie. De vereiste beschermende uitrusting dragen. Volg de juiste chemisch-hygiënische voorschriften.
7.2. Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten	Tegen zonlicht beschermen. Opslaan in de oorspronkelijke, goed gesloten container. Verwijderc houden van onverenigbare stoffen (zie Rubriek 10 van het veiligheidsinformatieblad). Opslaan op een koele, droge plek.
7.3. Specifiek eindgebruik	Niet beschikbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

8.1. Controleparameters

Grenswaarden voor beroepsmatige blootstelling	Geen blootstellingsgrenswaarden vastgesteld voor de bestanddelen.
Biologische grenswaarden	Geen biologische blootstellingsgrenswaarden vastgesteld voor de bestanddelen.
Aanbevolen monitoringprocedures	Volg de standaard monitoringprocedures.
Afgeleide doses zonder effect (DNEL's)	Niet beschikbaar.
Voorspelde concentraties zonder effect (predicted no-effect concentrations – PNECs)	Niet beschikbaar.

8.2. Maatregelen ter beheersing van blootstelling

Passende technische maatregelen	Er moet een goede algehele ventilatie worden gebruikt (gewoonlijk 10 luchtverversingen per uur). Ventiliatiesnelheden moeten zijn aangepast aan de omstandigheden. Gebruik, indien van toepassing, afgesloten procesruimten, plaatselijke afzuiging of andere technische middelen om de concentraties in de lucht onder de aanbevolen blootstellingslimieten te houden. Wanneer er geen blootstellingslimieten zijn vastgesteld, houd dan de concentraties in de lucht op een aanvaardbaar niveau.

Individuele beschermingsmaatregelen, zoals persoonlijke beschermingsmiddelen

Algemene informatie	Persoonlijke beschermingsmiddelen overeenkomstig CEN-normering en in overleg met de leverancier van persoonlijke beschermingsmiddelen.
Bescherming van de ogen/het gezicht	Draag een veiligheidsbril met zijkleppen (of een veiligheidsstofbril) en een gelaatsscherm. Chemische beschermbril en gelaatsscherm worden aanbevolen. Een gelaatsscherm wordt aanbevolen. Voor enige handeling, draag beschermende bril met zijschermen die voldoen aan de NF EN 166.
Bescherming van de huid	
- Bescherming van de handen	Chemicaliënbestendige handschoenen worden aanbevolen.
- Andere maatregelen	Geschikte chemisch-resistente kleding dragen. Het gebruik van een ondoorlatend schort wordt aanbevolen. Chemicaliënbestendige handschoenen worden aanbevolen.
Bescherming van de ademhalingswegen	Bij ontoereikende ventilatie een geschikte adembescherming dragen. Voorkom nevel/aërosolen.
Thermische gevaren	Draag geschikte thermische beschermende kleding, wanneer noodzakelijk.
Hygiënische maatregelen	Te allen tijde een goede persoonlijke hygiëne in acht nemen: zich wassen na behandeling van de stof en voor men gaat eten, drinken en/of roken. De werkkledij en de beschermingsmiddelen regelmatig wassen om de verontreinigingen te verwijderen. Verontreinigde werkkleding mag de werkruimte niet verlaten.
Beheersing van milieublootstelling	Bij elk omvangrijk ongewild vrijkomen dient de manager voor veiligheid en milieu te worden ingelicht.

RUBRIEK 9: Fysische en chemische eigenschappen

9.1. Informatie over fysische en chemische basiseigenschappen

Voorkomen	helder en Hazy.
Fysische toestand	Vloeistof.
Vorm	Vloeistof.
Kleur	Doorschijnend. Kleurloos.
Geur	Zoals amines.
Geurdrempelwaarde	Niet beschikbaar.
pH	7 - 9
Smelt-/vriespunt	< 0 °C (< 32 °F)
Beginkookpunt en kooktraject	> 100 °C (> 212 °F)
Vlampunt	Niet beschikbaar.
Verdampingssnelheid	Niet beschikbaar.
Ontvlambaarheid (vast, gas)	Niet van toepassing.
Bovenste/onderste ontvlambaarheids- of explosiegrenswaarden	
Onderste ontvlambaarheidsgrenswaarde (%)	Niet beschikbaar.
Bovenste ontvlambaarheidsgrenswaarde (%)	Niet beschikbaar.
Dampspanning	Niet beschikbaar.
Dampdichtheid	Niet beschikbaar.
Relatieve dichtheid	Niet beschikbaar.
Oplosbaarheid	
Oplosbaarheid (water)	Voltooid
Verdelingscoëfficiënt: n-octanol/water	Niet beschikbaar.
Ontledingstemperatuur	Niet beschikbaar.
Viscositeit	Niet beschikbaar.

Ontploffingseigenschappen	Niet explosief.
Oxiderende eigenschappen	Niet oxiderend.

9.2. Overige informatie

Dichtheid	1,00 - 1,04 g/cm³
Soortelijk gewicht	1 geschat

RUBRIEK 10: Stabiliteit en reactiviteit

10.1. Reactiviteit	Oxiderende middelen. Zuren, oxiderend.
10.2. Chemische stabiliteit	In normale omstandigheden is de stof stabiel.
10.3. Mogelijke gevaarlijke reacties	Onder normale gebruiksomstandigheden zijn geen gevaarlijke reacties waargenomen.
10.4. Te vermijden omstandigheden	Blootstelling aan licht. Warmte, vlammen en vonken. Bevriezend.
10.5. Chemisch op elkaar inwerkende materialen	Oxiderende middelen. Zuren.
10.6. Gevaarlijke ontledingsproducten	Bij thermische afbraaktemperaturen, koolmonoxide en kooldioxide.

RUBRIEK 11: Toxicologische informatie

Algemene informatie	Beroepsmatige blootstelling aan de stof of het mengsel kan schadelijke effecten veroorzaken

Informatie over waarschijnlijke blootstellingsrouten

Inhalatie	Inademing heeft normaliter geen schadelijke gevolgen.
Contact met huid	Kan een allergische huidreactie veroorzaken.
Contact met ogen	Direct contact met de ogen kan voorbijgaande irritatie veroorzaken.
Inslikken	Kan bij inslikken onaangenaam gevoel veroorzaken. Inslikken is echter niet waarschijnlijk als zijnde een primaire route van beroepsmatige blootstelling.
Symptomen	Kan een allergische huidreactie veroorzaken. Dermatitis. Uitslag.

11.1. Informatie over toxicologische effecten

Acute toxiciteit	Niet bekend.

Product	**Soorten**	**Testresultaten**
HYDREX 1992		
Acuut		
Huid		
LC50	Konijn	> 2 g/kg Berekend
Oraal		
LD50	Rat	> 5000 mg/kg Berekend

* Schattingen voor het product kunnen zijn gebaseerd op aanvullende gegevens van bestanddelen die niet zijn weergegeven.

Huidcorrosie/-irritatie	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Ernstig oogletsel/oogirritatie	Direct contact met de ogen kan voorbijgaande irritatie veroorzaken.
Sensibilisatie van de luchtwegen	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Sensibilisatie van de huid	Kan een allergische huidreactie veroorzaken.
Mutageniteit in geslachtscellen	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Carcinogeniteit	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken
Giftigheid voor de voortplanting	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Specifieke doelorgaantoxiciteit bij eenmalige blootstelling	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Specifieke doelorgaantoxiciteit bij herhaalde blootstelling	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken.
Gevaar bij inademing	Indeling is niet mogelijk omdat de gegevens geheel of gedeeltelijk ontbreken
Informatie over het mengsel versus informatie over de stof	Geen informatie beschikbaar.

Overige informatie Niet beschikbaar.

RUBRIEK 12: Ecologische informatie

12.1. Toxiciteit Gebaseerd op beschikbare gegevens; aan de indelingscriteria voor gevaarlijk voor het aquatisch milieu, acuut gevaar, is niet voldaan. Door gedeeltelijk of volledig gebrek aan gegevens is de indeling voor gevaarlijk voor het aquatisch milieu, gevaar op lange termijn, niet mogelijk.

Product		Soorten	Testresultaten
HYDREX 1992			
Aquatisch			
Kreeftachtigen	LC50	Daphnia	96 mg/l, 48 uren Berekend
Vis	LC50	Blauwkeel zonnebaars (Lepomis macrochirus)	190 mg/l, 96 uren Berekend
		Dikkop witvis (Pimephales promelas)	400 mg/l, 96 uren Berekend
		Regenboogforel	360 mg/l, 96 uren Berekend

* Schattingen voor het product kunnen zijn gebaseerd op aanvullende gegevens van bestanddelen die niet zijn weergegeven.

12.2. Persistentie en afbreekbaarheid Er zijn geen gegevens beschikbaar over de afbreekbaarheid van de bestanddelen in het mengsel.

12.3. Bioaccumulatie Geen gegevens beschikbaar.

Verdelingscoëfficiënt n-octanol/water (log Kow) Niet beschikbaar.

Bioconcentratiefactor (BCF) Niet beschikbaar.

12.4. Mobiliteit in de bodem Geen gegevens beschikbaar.

12.5. Resultaten van PBT- en zPzB-beoordeling Geen PBT- of zPzB-stof of mengsel.

12.6. Andere schadelijke effecten Van dit bestanddeel worden geen andere nadelige milieueffecten (bijv. afbraak van de ozonlaag, het vermogen op fotochemische wijze ozon te vormen, endocriene disruptie, het vermogen tot opwarming van de aarde) verwacht.

RUBRIEK 13: Instructies voor verwijdering

13.1. Afvalverwerkingsmethoden

Restafval Verwijderen volgens plaatselijke voorschriften. Lege containers of goederenschepen/-treinen kunnen resten van het product bevatten. Dit product en bijbehorende container/vat/verpakking moeten op een veilige manier worden afgevoerd (zie Instructies voor verwijdering).

Verontreinigde verpakking Neem ook wanneer de verpakking leeg is de waarschuwingen op het etiket in acht, omdat lege verpakkingen residuen kunnen bevatten. Lege containers moeten worden afgevoerd naar een erkende afvalverwerkingscentrale voor hergebruik of verwijdering.

EU-afvalcode De afvalcode moet worden toegekend in overleg met de gebruiker, de fabrikant en het verwijderingsbedrijf.

Verwijderingsmethoden / informatieover verwijdering Verzamelen en opnieuw gebruiken, of in afgesloten houders naar daartoe bevoegde afvalverzamelplaatsen brengen. Inhoud/verpakking afvoeren overeenkomstig de plaatselijke/regionale/nationale/internationale voorschriften.

Speciale voorzorgsmaatregelen Afvoeren volgens alle toepasselijke wettelijke voorschriften.

RUBRIEK 14: Informatie met betrekking tot het vervoer

ADR

14.1. - 14.6.: Niet gereguleerd als gevaarlijke goederen.

RID

14.1. - 14.6.: Niet gereguleerd als gevaarlijke goederen.

ADN

14.1. - 14.6.: Niet gereguleerd als gevaarlijke goederen.

IATA

14.1. - 14.6.: Niet gereguleerd als gevaarlijke goederen.

IMDG

14.1. - 14.6.: Niet gereguleerd als gevaarlijke goederen.

14.7. Vervoer in bulk overeenkomstig bijlage II bij MARPOL 73/78 en de IBC-code Niet vastgesteld.

RUBRIEK 15: Regelgeving

15.1. Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

EU-verordeningen

Verordening (EG) nr. 1005/2009 betreffende de ozonlaag afbrekende stoffen, Bijlage I en II, zoals gewijzigd

Niet vermeld.

Verordening (EG) nr. 850/2004 betreffende persistente organische verontreinigende stoffen, Bijlage I, als geamendeerd

Niet vermeld.

Verordening (EU) nr. 649/2012 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage I, Deel 1 zoals gewijzigd

Niet vermeld.

Verordening (EU) nr. 649/2012 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage I, Deel 2 zoals gewijzigd

Niet vermeld.

Verordening (EU) nr. 649/2012 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage I, Deel 3 zoals gewijzigd

Niet vermeld.

Verordening (EU) nr. 649/2012 betreffende de in- en uitvoer van gevaarlijke chemische stoffen, Bijlage V zoals gewijzigd

Niet vermeld.

Verordening (EG) nr. 166/2006 Bijlage II inzake de registratie van overbrenging en uitstoot van verontreinigende stoffen, zoals gewijzigd

Niet vermeld.

Verordening (EG) nr. 1907/2006 REACH Artikel 59(10) Kandidaatslijst als op het ogenblik gepubliceerd door de ECHA

Niet vermeld.

Autorisaties

Verordening (EG) nr. 1907/2006 REACH Bijlage XIV Lijst van autorisatieplichtige stoffen, zoals gewijzigd

Niet vermeld.

Beperkingen voor het gebruik

Verordening (EG) nr. 1907/2006 REACH Bijlage XVII Stoffen die onderhevig zijn aan beperkingen met betrekking tot marketing en gebruik als geamendeerd

Niet vermeld.

Richtlijn 2004/37/EG: betreffende de bescherming van de werknemers tegen de risico's van blootstelling aan carcinogene of mutagene agentia op het werk, zoals gewijzigd

Niet vermeld.

Andere EU-voorschriften

Richtlijn 2012/18/EU betreffende de beheersing van de gevaren van zware ongevallen waarbij gevaarlijke stoffen zijn betrokken, zoals gewijzigd

Niet vermeld.

Overige regelgeving	Het product is geclassificeerd en geëtiketteerd in overeenstemming met Verordening (EG) nr. 1272/2008 (CLP-verordening) zoals gewijzigd. Dit veiligheidsinformatieblad voldoet aan de vereisten van Verordening (EG) nr. 1907/2006 zoals gewijzigd.
Nationale voorschriften	Volg de nationale regelgeving bij het werken met chemische middelen. ABM: Algemene beoordelingsmethodiek (GAM) ABM Code: B(4) - Weinig schadelijk voor in water levende organismen.
15.2. Chemischeveiligheidsbeoordeling	Er is geen chemische veiligheidsbeoordeling uitgevoerd.

RUBRIEK 16: Overige informatie

Lijst van afkortingen en acroniemen	Niet beschikbaar.
Referenties	Niet beschikbaar.
Informatie over evaluatiemethode leidend tot de indeling van het mengsel	De indeling voor gezondheids- en milieugevaren komt tot stand via een combinatie van rekenmethoden en testgegevens, indien beschikbaar.

Volledige tekst van eventuele H-zinnen die niet volledig zijn uitgeschreven in Rubriek 2 t/m 15	H302 Schadelijk bij inslikken. H315 Veroorzaakt huidirritatie. H317 Kan een allergische huidreactie veroorzaken. H411 Giftig voor in het water levende organismen, met langdurige gevolgen.
Revisie-informatie	Dit document heeft significante wijzigingen ondergaan en moet geheel worden doorgelezen.
Trainingsinformatie	Volg de trainingsinstructies bij de hantering van dit materiaal.
Disclaimer	Veolia Water Solutions & Technologies is niet in staat te anticiperen op alle omstandigheden waaronder deze informatie en haar product, of de producten van andere fabrikanten in combinatie met haar product, mogelijk worden gebruikt. Het is de verantwoordelijkheid van de gebruiker om te zorgen voor veilige omstandigheden tijdens hantering, opslag en afvoer van het product, en om aansprakelijkheid te aanvaarden voor verlies, letsel, schade of kosten als gevolg van onjuist gebruik en/of het niet respecteren van de eisen van Veolia Water Solutions & Technologies.