





IMPIANTO SMALL SCALE LNG PLANT Collesanto gas field

Allegato 1 - Schede Sicurezza Chimici Impianto

Elenco dei consumi di chimici, materiali consumabili e commodities

STATO	Rev. n.	DATA	DESCRIZIONE	ELABORATO	VERIFICATO	APPROVATO
-	01	07/11/2023	EMISSIONE PER ENTI	DG Impianti	ITF Cosmep	ITF Cosmep
-	00	06/10/2023	EMISSIONE PER ENTI	DG Impianti	ITF Cosmep	ITF Cosmep
CONTRATTATORE  Engea Consulting  Engineering Management Contracting  ITALFLUID Cosmep				Titolo Progetto IMPIANTO SMALL SCALE LNG PLANT Collesanto gas field		
CLIENTE  LNEnergy						
				Scala	foglio/di	
				A4	1	di 1
Allegato 1 Elenco dei consumi di chimici, materiali consumabili e commodities				Doc. Codice		
				Doc. Pos		

SAFETY DATA SHEET



Antifoam agent, Antifoam 1520, Part Number 5190-2235

Section 1. Identification

1.1 Product identifier

Product name : Antifoam agent, Antifoam 1520, Part Number 5190-2235
Part no. : 5190-2235
Validation date : 5/19/2023

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use
 10 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification


2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

H319 EYE IRRITATION - Category 2A
 Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 10%

2.2 GHS label elements

Hazard pictograms : 

Signal word : Warning
Hazard statements : H319 - Causes serious eye irritation.

Precautionary statements

Prevention : P280 - Wear eye or face protection.
Response : P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337 + P313 - If eye irritation persists: Get medical advice or attention.

Storage : Not applicable.
Disposal : Not applicable.

2.3 Other hazards

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Siloxanes and Silicones, di-Me	≥10 - <25	63148-62-9
benzoic acid	<1	65-85-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Section 4. First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides
Formaldehyde.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Siloxanes and Silicones, di-Me benzoic acid	None. ACGIH TLV (United States, 1/2022). Absorbed through skin. TWA: 0.5 mg/m ³ 8 hours. Form: Inhalable fraction and vapor

Biological exposure indices

No exposure indices known.

8.2 Exposure controls

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Liquid. [Emulsion.]
- Color** : Milky white
- Odor** : Characteristic.
- Odor threshold** : Not available.
- pH** : 3.5
- Melting point/freezing point** : Not available.
- Boiling point, initial boiling point, and boiling range** : 65°C (149°F)
- Flash point** : Closed cup: >101.1°C (>214°F)
- Evaporation rate** : Not available.
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Not available.

Vapor pressure

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Water	17.5	2.3		92.258	12.3	
Siloxanes and Silicones, di-Me	5	0.67				

- Relative vapor density** : Not available.
- Relative density** : 1
- Density** : 1 g/cm³ [25°C (77°F)]

Section 9. Physical and chemical properties and safety characteristics

Solubility(ies)	:	Media	Result
		Water	Soluble
Miscible with water	:	Yes.	
Partition coefficient: n-octanol/water	:	Not applicable.	
Auto-ignition temperature	:	Not available.	
Decomposition temperature	:	Not available.	
Viscosity	:	Kinematic: 5000 mm ² /s (5000 cSt)	
Particle characteristics			
Median particle size	:	Not applicable.	

Section 10. Stability and reactivity

10.1 Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	The product is stable.
10.3 Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	No specific data.
10.5 Incompatible materials	:	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
benzoic acid	LD50 Oral	Rat	1700 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Siloxanes and Silicones, di-Me	Eyes - Mild irritant	Rabbit	-	1 hours 100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 100 uL	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 uL	-
benzoic acid	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-
	Skin - Mild irritant	Human	-	40 minutes 0.76 %	-
	Skin - Moderate irritant	Human	-	72 hours 22 mg l	-

Sensitization

Not available.

Mutagenicity

Section 11. Toxicological information

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
benzoic acid	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzoic acid	Category 1	inhalation	lungs

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Section 11. Toxicological information

- Carcinogenicity** : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
benzoic acid	1700	N/A	N/A	N/A	N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Siloxanes and Silicones, di-Me benzoic acid	Acute LC50 44.5 ppm Fresh water	Daphnia - Daphnia magna - Instar	48 hours
	Acute EC50 140 µg/l	Algae - Chlorella vulgaris - Exponential growth phase	72 hours
	Acute EC50 860 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 180 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
benzoic acid	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
benzoic acid	1.88	-	low

12.4 Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.

- 12.5 Other adverse effects** : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

- Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered

Section 13. Disposal considerations

when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) PAIR:** Siloxanes and Silicones, di-Me; Siloxanes and Silicones, di-Me, reaction products with silica

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Water Act (CWA) 311: benzoic acid; Sulphuric acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Sulphuric acid	≤0.1	Yes.	1000	66.3	1000	66.3

Section 15. Regulatory information

SARA 304 RQ : 1111111.1 lbs / 504444.4 kg [133260.1 gal / 504444.4 L]

SARA 311/312

Classification : EYE IRRITATION - Category 2A

Composition/information on ingredients

Name	%	Classification
Siloxanes and Silicones, di-Me	≥10 - <25	EYE IRRITATION - Category 2A

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

⚠ WARNING: This product can expose you to Strong inorganic acid mists containing sulfuric acid, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Strong inorganic acid mists containing sulfuric acid	-	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Eurasian Economic Union : **Russian Federation inventory:** All components are listed or exempted.

Japan : **Japan inventory (CSCL):** All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

United States : All components are active or exempted.

Section 15. Regulatory information

Viet Nam : All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
☑ EYE IRRITATION - Category 2A	Calculation method

History

Date of issue : 05/19/2023

Date of previous issue : 05/20/2020

Version : 6

Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 UN = United Nations

☑ Indicates information that has changed from previously issued version.

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

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Substance key: 000000473131

Revision Date: 14.03.2023

Version : 7 - 0 / EU

Date of printing : 16.03.2023

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

1.1. Product identifier

Trade name

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Material number: 250014

Chemical nature:

Mixture of quaternary amines and ethoxylated imidazolines in water.

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

Relevant identified uses of the substance or mixture

Industry sector : Oilfield

Type of use : Corrosion inhibitor

Exposure scenarios: see annex

1.3. Details of the supplier of the safety data sheet

Identification of the company

Clariant Gulf FZ-LLC
Dubai Science Park North Tower, Office No: 1601
Dubai – U.A.E

Information about the substance/mixture

BU Care Chemicals
Product Stewardship
e-mail: SDS.Europe@clariant.com

1.4. Emergency telephone number

00800-5121 5121 (24 h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4

H302: Harmful if swallowed.

Skin irritation, Category 2

H315: Causes skin irritation.

Serious eye damage, Category 1

H318: Causes serious eye damage.

Skin sensitisation, Category 1

H317: May cause an allergic skin reaction.

Long-term (chronic) aquatic hazard,
Category 2

H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

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Substance key: 000000473131

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Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H302 Harmful if swallowed. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements	:	Prevention: P261 Avoid breathing mist or vapours. P264 Wash skin thoroughly after handling. P273 Avoid release to the environment. P280 Wear protective gloves/ eye protection/ face protection. Response: P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. P391 Collect spillage.

Hazardous components which must be listed on the label:

Reaction product of tallow fatty propylene diamine, formaldehyde and ethylene oxide
Fatty acids, tall-oil, reaction products with polyethylenepolyamines
Alkylpyridine benzyl chloride quaternary
Mercaptoacetic acid

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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

No additional hazards are known except those derived from the labelling.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No.	Classification	Concentration (% w/w)
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	Index-No. Registration number		
Reaction product of tallow fatty propylene diamine, formaldehyde and ethylene oxide	283149-88-2	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 1; H410 Aquatic Acute 1; H400	>= 3 - < 10
Ethanediol	107-21-1 203-473-3 603-027-00-1 01-2119456816-28 01-2119456816-28-0000 01-2119456816-28-0003 01-2119456816-28-0038 01-2119456816-28-0117 UK-20-5549617523-7-0000 UK-20-7511478711-4-0000 UK-20-8044687532-2-0000	Acute Tox. 4; H302 STOT RE 2; H373 (Kidney)	>= 1 - < 10
Fatty acids, tall-oil, reaction products with polyethylenepolyamines	68910-93-0 272-756-1	Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 1; H410 Aquatic Acute 1; H400	>= 3 - < 10
Alkylpyridine benzyl chloride quaternary	100765-57-9	Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1B; H317 STOT SE 3; H335 (Respiratory system) STOT RE 2; H373 Aquatic Chronic 2; H411	>= 3 - < 10
Mercaptoacetic acid	68-11-1 200-677-4 607-090-00-6 01-2119494933-24 DUIN-UK-20-1442979995-1-0000	Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 <hr/> Acute toxicity estimate <hr/> Acute oral toxicity: 73	>= 1 - < 3

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		mg/kg Acute dermal toxicity: 848 mg/kg	
Methanol	67-56-1 200-659-6 603-001-00-X 01-2119433307-44 01-2119433307-44-0000 01-2119433307-44-0024 01-2119433307-44-0061 01-2119433307-44-0066 01-2119433307-44-0071 01-2119433307-44-0091 01-2119433307-44-0128 01-2119433307-44-0142 01-2119433307-44-0176 01-2119433307-44-XXXX	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370 (Eyes, Central nervous system) specific concentration limit STOT SE 1; H370 ≥ 10 % STOT SE 2; H371 3 - < 10 % STOT SE 1; H370 ≥ 10 % STOT SE 2; H371 3 - < 10 %	≥ 1 - < 3

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Remove/ Take off immediately all contaminated clothing. Get medical advice/ attention if you feel unwell.
- If inhaled : If inhaled, remove to fresh air. Get medical advice/ attention.
- In case of skin contact : Wash off immediately with plenty of water. Consult a physician.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.
- If swallowed : Rinse mouth with water. If conscious, give the victim plenty of water to drink. Do NOT induce vomiting. In case of unconsciousness do not induce vomiting or give anything by mouth. Take victim immediately to hospital.

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4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : irritant effects
corrosive effects
sensitising effects
- Risks : Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Dry powder
Alcohol-resistant foam
Carbon dioxide (CO₂)

5.2 Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Carbon oxides
Sulphur oxides
Hydrogen sulfide (H₂S)

5.3 Advice for firefighters

- Special protective equipment for firefighters : Full protective suit In case of fire: Wear respiratory protection.
- Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : Ensure adequate ventilation.
Wear suitable protective equipment.
Wear respiratory protection.
Do not let the liquid drain into rivers, ponds or sewer systems.

6.2 Environmental precautions

- Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.
If the product contaminates rivers and lakes or drains inform respective authorities.

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6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material.
Dispose of absorbed material in accordance with the regulations.
Rinse away rest with plenty of water

6.4 Reference to other sections

Information regarding Safe handling, see chapter 7., For personal protection see section 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid spilling, spraying or splashing
Provide adequate ventilation.
In case of insufficient ventilation, wear suitable respiratory equipment.
Have eyewash bottle in readiness.

Advice on protection against fire and explosion : Observe the general rules of industrial fire protection

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off immediately all contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a cool, well-ventilated place.
Keep only in the original container.

Further information on storage conditions : Keep containers tightly closed in a cool, well-ventilated place.
Handle and open container with care.

7.3 Specific end use(s)

Specific use(s) : No further recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Ethenediol CAS-No.: 107-21-1	Workers	Inhalation	Long-term local effects	35 mg/m ³
Remarks:DNEL				

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	Workers	Dermal	Long-term systemic effects	106 mg/kg bw/day
	Remarks:DNEL			
	Consumers	Inhalation	Long-term local effects	7 mg/m3
	Remarks:DNEL			
	Consumers	Dermal	Long-term systemic effects	53 mg/kg bw/day
	Remarks:DNEL			
Mercaptoacetic acid CAS-No.: 68-11-1	Workers	Inhalation	Long-term systemic effects	1,13 mg/m3
	Remarks:DNEL			
	Workers	Inhalation	Acute systemic effects	4,5 mg/m3
	Remarks:DNEL			
	Workers	Inhalation	Acute local effects	4,5 mg/m3
	Remarks:DNEL			
	Workers	Dermal	Long-term systemic effects	1,6 mg/kg bw/day
	Remarks:DNEL			
	Consumers	Oral	Long-term systemic effects	0,08 mg/kg bw/day
	Remarks:DNEL			
Methanol CAS-No.: 67-56-1	Workers	Inhalation	Long-term systemic effects	130 mg/m3
	Remarks:DNEL			
	Workers	Inhalation	Acute systemic effects	130 mg/m3
	Remarks:DNEL			
	Workers	Inhalation	Long-term local effects	130 mg/m3
	Remarks:DNEL			
	Workers	Inhalation	Acute local effects	130 mg/m3
	Remarks:DNEL			
	Workers	Dermal	Long-term systemic effects	20 mg/kg bw/day
	Remarks:DNEL			
	Workers	Dermal	Acute systemic effects	20 mg/kg bw/day
	Remarks:DNEL			
	Consumers	Inhalation	Long-term systemic effects	26 mg/m3
	Remarks:DNEL			
	Consumers	Inhalation	Acute systemic effects	26 mg/m3
	Remarks:DNEL			
	Consumers	Inhalation	Long-term local effects	26 mg/m3
	Remarks:DNEL			
	Consumers	Inhalation	Acute local effects	26 mg/m3
	Remarks:DNEL			
	Consumers	Dermal	Long-term systemic effects	4 mg/kg bw/day

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	Remarks:DNEL			
Consumers	Dermal	Acute systemic effects	4 mg/kg bw/day	
	Remarks:DNEL			
Consumers	Oral	Long-term systemic effects	4 mg/kg bw/day	
	Remarks:DNEL			
Consumers	Oral	Acute systemic effects	4 mg/kg bw/day	
	Remarks:DNEL			

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Mercaptoacetic acid CAS-No.: 68-11-1	Fresh water	0,027 mg/l
	Intermittent use/release	0,27 mg/l
	Marine water	0,003 mg/l
	Sewage treatment plant	0,5 mg/l
	Fresh water sediment	0,009 mg/kg dry weight (d.w.)
	Marine sediment	0,001 mg/kg dry weight (d.w.)
	Soil	0,005 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Provide adequate ventilation.

Personal protective equipment

Eye/face protection : Tightly fitting safety goggles
Face-shield

Hand protection

Remarks : Neoprene gloves Nitrile rubber gloves. PVC or PE gloves

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Use only in well-ventilated areas.
In the case of vapour formation use a respirator with an approved filter.
Equipment should conform to EN 14387
If the occupational exposure limits cannot be met, in exceptional cases suitable respiratory equipment should be worn only for a short period of time.
ABEK-P3-filter

Protective measures : Do not inhale vapours
Avoid contact with skin and eyes.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

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Physical state	:	Liquid
Colour	:	yellow to amber
Odour	:	pungent
Odour Threshold	:	not determined
Melting point	:	< 0 °C
Boiling point	:	> 100 °C
Upper explosion limit / upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Flash point	:	> 61 °C
Auto-ignition temperature	:	not available
Decomposition temperature	:	> 100 °C
pH	:	5,17 (25 °C) Concentration: 100 %
Viscosity		
Viscosity, dynamic	:	ca. 3,3 mPa.s (23 °C)
Viscosity, kinematic	:	no data available
Solubility(ies)		
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	Not applicable
Vapour pressure	:	approx. 3 kPa (20 °C)
Density	:	ca. 1,02 g/cm ³ (25 °C)
Relative vapour density	:	no data available
Particle characteristics		
Particle size	:	Not applicable

9.2 Other information

Self-ignition	:	no data available
Metal corrosion rate	:	Not applicable

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Evaporation rate : Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

See section 10.3. "Possibility of hazardous reactions"

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : With acids hydrogen sulphide is produced.

10.4 Conditions to avoid

Conditions to avoid : Keep away from heat.
Keep away from flames and sparks.

10.5 Incompatible materials

Materials to avoid : not known

10.6 Hazardous decomposition products

Carbon oxides
Sulphur oxides
Hydrogen sulfide (H₂S)

SECTION 11: Toxicological information

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

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate: 1.351 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Components:

Reaction product of tallow fatty propylene diamine, formaldehyde and ethylene oxide:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Ethanediol:

Acute oral toxicity : LD50 (Rat, male and female): Method: Other

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GLP: no

Assessment: The component/mixture is moderately toxic after single ingestion.

- Acute inhalation toxicity : LC50 (Rat, male and female): > 2,5 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist
Method: Other
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Mouse, male and female): > 3.500 mg/kg
Method: Other
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

Alkylpyridine benzyl chloride quaternary:

- Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : Assessment: The component/mixture is toxic after short term inhalation.
- Acute dermal toxicity : Assessment: The component/mixture is toxic after single contact with skin.

Mercaptoacetic acid:

- Acute oral toxicity : LD50 (Rat, male and female): 73 mg/kg
Method: OECD Test Guideline 401
- Acute inhalation toxicity : Assessment: The component/mixture is toxic after short term inhalation.
- Acute dermal toxicity : LD50 (Rabbit, male and female): 848 mg/kg
Method: OECD Test Guideline 402
GLP: no

Methanol:

- Acute oral toxicity : LD50 (Rat, male and female): 1.187 - 2.769 mg/kg
Method: Other
GLP: no
Assessment: The component/mixture is toxic after single ingestion.
- Acute inhalation toxicity : LC50 (Rat, male and female): 87,5 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Method: Other
GLP: no
Assessment: The component/mixture is toxic after short term

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inhalation.

Acute dermal toxicity : Assessment: The component/mixture is toxic after single contact with skin.

Skin corrosion/irritation

Product:

Remarks : no data available

Components:

Reaction product of tallow fatty propylene diamine, formaldehyde and ethylene oxide:

Result : Irritating to skin.

Ethanediol:

Species : Rabbit
Exposure time : 20 h
Method : Other
Result : No skin irritation
GLP : no

Fatty acids, tall-oil, reaction products with polyethylenepolyamines:

Result : Irritating to skin.

Alkylpyridine benzyl chloride quaternary:

Result : Irritating to skin.

Mercaptoacetic acid:

Method : Other
Result : Causes burns.
GLP : yes

Methanol:

Species : Rabbit
Exposure time : <= 20 h
Method : Other
Result : No skin irritation
GLP : no

Serious eye damage/eye irritation

Product:

Remarks : no data available

Components:

Reaction product of tallow fatty propylene diamine, formaldehyde and ethylene oxide:

Result : Risk of serious damage to eyes.

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Ethanediol:

Species : Rabbit
Exposure time : 24 h
Method : Other
Result : No eye irritation
GLP : no

Fatty acids, tall-oil, reaction products with polyethylenepolyamines:

Result : Risk of serious damage to eyes.

Alkylpyridine benzyl chloride quaternary:

Result : Risk of serious damage to eyes.

Mercaptoacetic acid:

Species : Rabbit
Method : Directive 67/548/EEC, Annex V, B.5.
Result : Risk of serious damage to eyes.

Methanol:

Species : Rabbit
Method : Other
Result : No eye irritation
GLP : no

Respiratory or skin sensitisation

Product:

Remarks : no data available

Components:

Ethanediol:

Test Type : Maximisation Test
Exposure routes : Dermal
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Not a skin sensitizer.
GLP : yes

Assessment : Harmful if swallowed.

Alkylpyridine benzyl chloride quaternary:

Result : The product is a skin sensitizer, sub-category 1B.

Mercaptoacetic acid:

Remarks : no data available

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Methanol:

Test Type : Maximisation Test
Exposure routes : Dermal
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Not a skin sensitizer.
GLP : no

Assessment : Toxic if swallowed, in contact with skin or if inhaled.

Germ cell mutagenicity

Product:

Germ cell mutagenicity-
Assessment : No information available.

Components:

Ethanediol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 33 - 5000 µg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Ames test
Test system: Escherichia coli
Concentration: 33 - 5000 µg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: Other
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Dominant lethal assay
Species: Rat (male and female)

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Strain: Fischer F344
Application Route: oral (feed)
Exposure time: 3 generation
Dose: 40 - 200 - 1000 mg/kg
Method: Other
Result: negative
GLP: no

Germ cell mutagenicity-
Assessment : It is concluded that the product is not mutagenic based on
evaluation of several mutagenicity tests.

Mercaptoacetic acid:

Genotoxicity in vitro : Test Type: In vitro gene mutation study in bacteria
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro gene mutation study in mammalian cells
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: Regulation (EC) No. 440/2008, Annex, B.17
Result: negative
GLP: yes
Remarks: By analogy with a product of similar composition

Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male)
Strain: Switzerland
Application Route: Dermal
Dose: 1000, 500, 250 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Test Type: Micronucleus test
Species: Mouse (female)
Strain: Switzerland
Application Route: Dermal
Dose: 500, 250, 125 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Germ cell mutagenicity-
Assessment : In vitro tests did not show mutagenic effects, In vivo tests did
not show mutagenic effects

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Methanol:

- Genotoxicity in vitro : Test Type: Micronucleus test
Test system: Chinese hamster lung cells
Concentration: 40 mg/ml
Method: Other
Result: negative
GLP: No information available.
- Test Type: HGPRT assay
Test system: Chinese hamster lung cells
Concentration: 15,8 - 63,3 mg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: No information available.
- Test Type: In vitro gene mutation study in bacteria
Test system: Salmonella typhimurium
Concentration: 5 - 5000 µg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: No information available.
- Genotoxicity in vivo : Test Type: Chromosome Aberration Test
Species: Mouse (male)
Strain: C57BL/6 x DBA/2
Application Route: Inhalation
Exposure time: 5 d, 6 h/day
Dose: 1,04 - 5,3 mg/l
Method: Other
Result: negative
GLP: No information available.
- Germ cell mutagenicity-
Assessment : It is concluded that the product is not mutagenic based on
evaluation of several mutagenicity tests.

Carcinogenicity

Product:

- Carcinogenicity -
Assessment : No information available.

Components:

Ethanediol:

- Species : Mouse, male and female
Application Route : oral (feed)
Exposure time : 2 a
Dose : 6250-12500-25000-50000 ppm
Control Group : yes
Frequency of Treatment : daily

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NOAEL : 1.500 mg/kg bw/day
Method : Other
GLP : yes

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Mercaptoacetic acid:

Species : Mouse, female
Application Route : Dermal
Dose : 1% and 2% in acetone
Method : Other
Result : negative
GLP : no
Remarks : By analogy with a product of similar composition

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Methanol:

Species : Rat, male and female
Application Route : Inhalation
Exposure time : 24
Dose : 0,013 - 0,13 - 1,3 mg/l
Control Group : yes
Frequency of Treatment : 20 h/day
NOAEL : >= 1,3 mg/l
Method : OECD Test Guideline 453
GLP : No information available.

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : No information available.
No information available.

Components:

Ethanediol:

Effects on fertility : Test Type: Three-generation study
Species: Rat, male and female
Strain: Fischer F344
Application Route: oral (feed)
Dose: 40 - 200 - 1000
General Toxicity - Parent: NOAEL: > 1.000 mg/kg body weight
General Toxicity F1: NOAEL: > 1.000 mg/kg body weight
General Toxicity F2: NOAEL: > 1.000 mg/kg body weight
Method: Other
GLP: no

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Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, female
Strain: Sprague-Dawley
Application Route: oral (gavage)
Dose: 150 - 500 - 1000 - 2500 mg/kg
Duration of Single Treatment: 9 d
General Toxicity Maternal: NOEL: 1.500 mg/kg body weight
Teratogenicity: NOEL: 150 mg/kg body weight
Method: Other
GLP: yes

Reproductive toxicity - Assessment : No reproductive toxicity to be expected.
No teratogenic effects to be expected.

Mercaptoacetic acid:

Effects on fertility : Test Type: One generation study
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: oral (gavage)
Dose: 0, 20, 40 or 80 mg/kg/day
General Toxicity - Parent: NOEL: 20 mg/kg body weight
General Toxicity F1: NOEL: 40 mg/kg body weight
Method: OECD Test Guideline 421
GLP: yes
Remarks: By analogy with a product of similar composition

Effects on foetal development : Test Type: Pre-natal
Species: Rat
Strain: wistar
Application Route: oral (gavage)
Dose: 3, 15 and 75 mg/kg
General Toxicity Maternal: NOAEL: 15 mg/kg body weight
Developmental Toxicity: NOAEL: 75 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes
Remarks: By analogy with a product of similar composition

Test Type: Pre-natal
Species: Rat
Strain: Sprague-Dawley
Application Route: Dermal
Dose: 50, 100 or 200 mg/day
General Toxicity Maternal: NOAEL: < 50 mg/kg body weight
Developmental Toxicity: NOAEL: >= 100 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes
Remarks: By analogy with a product of similar composition

Test Type: Pre-natal
Species: Rabbit
Strain: New Zealand white
Application Route: Dermal

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Dose: 10, 15, 25 or 65 mg/kg/day
General Toxicity Maternal: NOAEL: >= 65 mg/kg body weight
Developmental Toxicity: NOAEL: >= 65 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes
Remarks: By analogy with a product of similar composition

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

Methanol:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: Inhalation
Dose: 0,013 - 0,13 - 1,3 mg/l
Duration of Single Treatment: 20 h
General Toxicity - Parent: NOAEC: 1,3 mg/l
General Toxicity F1: NOAEC: 0,13 mg/l
General Toxicity F2: NOAEC: 0,13 mg/l
Method: OECD Test Guideline 416
GLP: No information available.

Effects on foetal development : Test Type: Pre-natal
Species: Rat, female
Strain: Sprague-Dawley
Application Route: Inhalation
Dose: 0,27 - 1,33 - 6,65 mg/l
Duration of Single Treatment: 22,7 h
General Toxicity Maternal: NOAEC: 1,33 mg/l
Teratogenicity: NOAEC F1: 1,33 mg/l
Method: OECD Test Guideline 414
GLP: No information available.

Test Type: Pre-natal
Species: Rat
Strain: Long-Evans
Application Route: oral (gavage)
Dose: 1027 - 2054 - 4108 mg/kg
Frequency of Treatment: 1
General Toxicity Maternal: LOAEL: 1.027 mg/kg body weight
Teratogenicity: LOAEL F1: 1.027 mg/kg body weight
Method: OECD Test Guideline 414
GLP: No information available.

Reproductive toxicity - Assessment : No reproductive toxicity to be expected.
No teratogenic effects to be expected.

STOT - single exposure

Product:

Remarks : no data available

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Components:

Ethanediol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Alkylpyridine benzyl chloride quaternary:

Assessment : May cause respiratory irritation.

Mercaptoacetic acid:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Methanol:

Target Organs : Eyes, Central nervous system
Assessment : Causes damage to organs.

STOT - repeated exposure

Product:

Remarks : no data available

Components:

Ethanediol:

Exposure routes : Oral
Target Organs : Kidney
Assessment : May cause damage to organs through prolonged or repeated exposure.

Alkylpyridine benzyl chloride quaternary:

Assessment : May cause damage to organs through prolonged or repeated exposure.

Mercaptoacetic acid:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Methanol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Product:

Remarks : no data available

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Components:

Ethanediol:

Species : Rat, male
NOAEL : 150 mg/kg bw/day
Application Route : oral (feed)
Exposure time : 16 w
Number of exposures : daily
Dose : 50 - 150 - 500 - 1000 mg/kg
Control Group : yes
Method : OECD Test Guideline 408
GLP : No information available.

Species : Dog, male
NOAEL : 2.200 - 4.400 mg/kg bw/day
Application Route : Dermal
Exposure time : 4 w
Number of exposures : daily
Dose : 2 - 4 mL/kg bw
Control Group : yes
Method : OECD Test Guideline 410
GLP : yes

Species : Rat, male and female
NOAEL : 200 mg/kg bw/day
Application Route : oral (gavage)
Exposure time : 33 d
Number of exposures : daily
Dose : 220, 660, 2000 mg/kg bw/day
Control Group : yes
Method : OECD Test Guideline 407

Species : Rat, male
NOAEL : 150 mg/kg bw/day
Application Route : oral (feed)
Exposure time : 12 months
Number of exposures : daily
Dose : 50, 150, 300, 400 mg/kg bw/day
Control Group : yes
Method : OECD Test Guideline 452

Mercaptoacetic acid:

Species : Rat, male and female
NOEL : 7 mg/kg
NOAEL : 20 mg/kg
LOAEL : 60 mg/kg
Application Route : oral (gavage)
Exposure time : 13 weeks
Number of exposures : 7 days/week
Dose : 7, 20, 60 mg/kg bw/d
Method : OECD Test Guideline 408
GLP : yes
Remarks : By analogy with a product of similar composition

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Species : Rat, male and female
NOAEL : >= 180 mg/kg
LOAEL : 11,25 mg/kg
Application Route : Dermal
Exposure time : 13 weeks
Number of exposures : 5 times/week
Dose : 11.25,22.5,45,90,180mg/kg bw/d
Method : OECD Test Guideline 411
Remarks : By analogy with a product of similar composition

Methanol:

Species : Monkey, male
LOAEL : 2.340 mg/kg
Application Route : oral (gavage)
Exposure time : 3 d
Number of exposures : daily
Dose : 2340 mg/kg
Control Group : no data available
Method : Other
GLP : No information available.
Remarks : Significant toxicity observed in testing

Species : Rat, male and female
NOEL : 0,13 mg/l
LOAEL : 1,3 mg/l
Application Route : Inhalation
Test atmosphere : vapour
Exposure time : 12 m
Number of exposures : 20 h/day
Dose : 0,013 - 0,13 - 1,3 mg/l
Control Group : yes
Method : OECD Test Guideline 453
GLP : No information available.

Species : Rat, male and female
NOAEL : 6,66 mg/l
Application Route : Inhalation
Test atmosphere : vapour
Exposure time : 4 w
Number of exposures : 6 h/d, 5 d/wk
Dose : 0,663 - 2,65 - 6,63 mg/l
Control Group : yes
Method : OECD Test Guideline 412
GLP : No information available.

Application Route : Skin contact
Remarks : not tested.

Aspiration toxicity

Product:

no data available

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Components:

Ethanediol:

No aspiration toxicity classification

Mercaptoacetic acid:

No aspiration toxicity classification

Methanol:

No aspiration toxicity classification

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: no data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: no data available

Toxicity to algae/aquatic plants : Remarks: no data available

Toxicity to microorganisms : Remarks: no data available

Components:

Reaction product of tallow fatty propylene diamine, formaldehyde and ethylene oxide:

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Ethanediol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 72.860 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes

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Method: EPA
GLP: no
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 6.500 - 13.000 mg/l
End point: Growth rate
Exposure time: 7 d
Test Type: static test
Analytical monitoring: no data available
Method: EPA
GLP: No information available.

Toxicity to microorganisms : EC20 (activated sludge, domestic): > 1.995 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 0,5 h
Analytical monitoring: no
Method: ISO 8192
GLP: no

Toxicity to fish (Chronic toxicity) : Chronic Toxicity Value: 2.629 mg/l
End point: Other
Exposure time: 30 d
Species: Fish
Method: Other
GLP: no
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 8.590 mg/l
End point: Reproduction rate
Exposure time: 7 d
Species: Ceriodaphnia spec.
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: The details of the toxic effect relate to the nominal concentration.

Fatty acids, tall-oil, reaction products with polyethylenepolyamines:

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Alkylpyridine benzyl chloride quaternary:

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Mercaptoacetic acid:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 38 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): 13 mg/l
End point: Biomass
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

EC50 (Pseudokirchneriella subcapitata (algae)): 27 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): 530 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes
Remarks: By analogy with a product of similar composition

NOEC (activated sludge): 32 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes
Remarks: By analogy with a product of similar composition

Toxicity to fish (Chronic toxicity) : Remarks: no data available

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: no data available

Methanol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 15.400 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes
Method: EPA
GLP: No information available.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 18.260 mg/l
End point: Immobilization
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: no data available
Method: OECD Test Guideline 202
GLP: No information available.
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (microalgae)): ca. 22.000 mg/l
End point: Growth rate
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no data available
Method: OECD Test Guideline 201
GLP: No information available.

Toxicity to microorganisms : IC50 (activated sludge): > 1.000 mg/l
End point: Bacteria toxicity (growth inhibition)
Exposure time: 3 h
Test Type: aquatic
Analytical monitoring: yes
Method: OECD Test Guideline 209
GLP: No information available.

Toxicity to fish (Chronic toxicity) : NOEC: 446,7 mg/l
Exposure time: 28 d
Species: Pimephales promelas (fathead minnow)
Method: Other
GLP: no
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 208 mg/l
End point: Reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)

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Method: calculated
GLP: no
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Toxicity to soil dwelling organisms : LC50: > 1 mg/cm²
Exposure time: 48 h
End point: mortality
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 207
GLP: No information available.

NOEC:
10000 mg/kg dry weight (d.w.)
Exposure time: 28 d
End point: mortality
Species: Folsomia candida
Method: Other
GLP: No information available.

Plant toxicity : IC50: ca. 41.000 mg/l
Exposure time: 3 d
End point: emergence
Species: Lactuca sativa (lettuce)
Analytical monitoring: no data available
Method: Other
GLP: no

Sediment toxicity : Remarks: Not applicable

12.2 Persistence and degradability

Product:

Biodegradability : Biodegradation: < 20 %
Method: OECD

Components:

Ethenediol:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 53 mg/l
Result: Readily biodegradable.
Biodegradation: 90 - 100 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 10 d
Method: OECD Test Guideline 301A
GLP: yes

Mercaptoacetic acid:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge

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Result: Readily biodegradable.
Biodegradation: 67 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Methanol:

Biodegradability

: Test Type: aerobic
Inoculum: activated sludge
Concentration: 3 - 10 mg/l
Result: Readily biodegradable.
Biodegradation: 95 %
Related to: Biochemical Oxygen Demand (BOD)
Exposure time: 20 d
Method: Closed Bottle test
GLP: no

Test Type: aerobic
Inoculum: activated sludge
Concentration: 4 - 200 g/l
Result: Readily biodegradable.
Biodegradation: 82,7 %
Related to: Biochemical Oxygen Demand (BOD)
Exposure time: 5 d
Method: Other
GLP: no

Photodegradation

: Rate constant: 9,32E-13 cm³/s
Degradation (indirect photolysis): 50 % Degradation half life:
17,2 d
GLP: no

12.3 Bioaccumulative potential

Product:

Bioaccumulation

: Remarks: no data available

Components:

Ethanediol:

Bioaccumulation

: Remarks: Due to the low logPow bioaccumulation is not expected

Partition coefficient: n-octanol/water

: log Pow: -1,36
Method: estimated
GLP: no

Mercaptoacetic acid:

Bioaccumulation

: Remarks: No bioaccumulation is to be expected (log Pow <= 4).

Partition coefficient: n-octanol/water

: log Pow: -2,99 (22 °C)
pH: 7

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Method: OECD Test Guideline 107

Methanol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Exposure time: 72 h
Bioconcentration factor (BCF): < 10
Method: Other
GLP: No information available.

Partition coefficient: n-octanol/water : log Pow: -0,77
Method: No information available.
GLP: No information available.

12.4 Mobility in soil

Product:

Distribution among environmental compartments : Remarks: no data available

Components:

Ethanediol:

Distribution among environmental compartments : Adsorption/Soil
Medium: water - soil
log Koc: 0
Method: other (calculated)

Methanol:

Distribution among environmental compartments : Adsorption/Soil
Medium: water - soil
Koc: 1
Method: other (calculated)

12.5 Results of PBT and vPvB assessment

Product:

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.

Components:

Ethanediol:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Methanol:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

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12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : no data available

Components:

Ethanediol:

Environmental fate and pathways : not available

Additional ecological information : Do not allow to enter ground water, waterways or waste water.

Methanol:

Environmental fate and pathways : not available

Additional ecological information : Do not allow to enter ground water, waterways or waste water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

Contaminated packaging : Packaging that cannot be cleaned should be disposed of as product waste

SECTION 14: Transport information

Section 14.1. to 14.5.

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ADR

UN no.	UN 1760
Proper shipping name:	Corrosive liquid, n.o.s.
Hazard inducer(s):	Thioglycolic acid Fatty acids, tall-oil, reaction products with polyethylenepolyamines
Class:	8
Primary risk:	8
Packing group:	II
Hazard no. :	80
Environmental hazards:	Special marking provision: environmentally hazardous
Remarks	Shipment permitted

ADN

UN no.	UN 1760
Proper shipping name:	Corrosive liquid, n.o.s.
Hazard inducer(s):	Thioglycolic acid Fatty acids, tall-oil, reaction products with polyethylenepolyamines
Class:	8
Primary risk:	8
Packing group:	II
Environmental hazards:	Special marking provision: environmentally hazardous
Remarks	Shipment permitted

RID

UN no.	UN 1760
Proper shipping name:	Corrosive liquid, n.o.s.
Hazard inducer(s):	Thioglycolic acid Fatty acids, tall-oil, reaction products with polyethylenepolyamines
Class:	8
Primary risk:	8
Packing group:	II
Hazard no. :	80
Environmental hazards:	Special marking provision: environmentally hazardous
Remarks	Shipment permitted

IATA

UN no.	UN 1760
Proper shipping name:	Corrosive liquid, n.o.s.
Hazard inducer(s):	Thioglycolic acid Fatty acids, tall-oil, reaction products with polyethylenepolyamines
Class:	8
Primary risk:	8
Packing group:	II
Environmental hazards:	Special marking provision: environmentally hazardous
Remarks	Shipment permitted

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IMDG

UN no.	UN 1760
Proper shipping name:	Corrosive liquid, n.o.s.
Hazard inducer(s):	Thioglycolic acid Fatty acids, tall-oil, reaction products with polyethylenepolyamines
Class:	8
Primary risk:	8
Packing group:	II
Environmental hazards:	Special marking provision: environmentally hazardous
Remarks	Shipment permitted
Marine pollutant:	Marine Pollutant
Hazard inducer/Marine pollutant:	Fatty acids, tall-oil, reaction products with polyethylenepolyamines
EmS :	F-A S-B

14.6. Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

14.7. Maritime transport in bulk according to IMO instruments

No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3 Methanol (Number on list 75, 69)
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors	:	Neither banned nor restricted
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable

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Other regulations:

Apart from the data/regulations specified in this chapter, no further information is available concerning safety, health and environmental protection.

European Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

15.2 Chemical safety assessment

Chemical Safety Assessments (CSAs) are available for one or more of the component substances contained in this product.

SECTION 16: Other information

Full text of H-Statements

H225	: Highly flammable liquid and vapour.
H301	: Toxic if swallowed.
H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
H314	: Causes severe skin burns and eye damage.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H331	: Toxic if inhaled.
H335	: May cause respiratory irritation.
H370	: Causes damage to organs.
H373	: May cause damage to organs through prolonged or repeated exposure.
H373	: May cause damage to organs through prolonged or repeated exposure if swallowed.
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.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Flam. Liq.	: Flammable liquids
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT RE	: Specific target organ toxicity - repeated exposure
STOT SE	: Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN -

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Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : Observe national and local legal requirements

Classification of the mixture:

Classification procedure:

Acute Tox. 4

H302

Calculation method

Skin Irrit. 2

H315

Calculation method

Eye Dam. 1

H318

Calculation method

Skin Sens. 1

H317

Calculation method

Aquatic Chronic 2

H411

Calculation method

This information corresponds to the present state of our knowledge and is intended as a general description of our products and their possible applications. Clariant makes no warranties, express or implied, as to the information's accuracy, adequacy, sufficiency or freedom from defect and assumes no liability in connection with any use of this information. Any user of this product is responsible for determining the suitability of Clariant's products for its particular application. Nothing included in this information waives any of Clariant's General Terms and Conditions of Sale, which control unless it agrees otherwise in writing. Any existing intellectual/industrial property rights must be observed. Due to possible changes in our products and applicable national and international regulations and laws, the status of our products could change. Material Safety Data Sheets providing safety precautions, that should be observed when handling or storing Clariant products, are available upon request and are provided in compliance with applicable law. You should obtain and review the applicable Material Safety Data Sheet

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



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information before handling any of these products. For additional information, please contact Clariant.

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Exposure scenario

Number	Title
ES 1	Formulation or re-packing; Formulation & (re)packing of substances and mixtures PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15, PROC28 - ERC2 2-Butoxyethanol
ES 2	Widespread use by professional workers; Use in oil and gas field drilling and production operations, off-shore PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC28 - ERC8d 2-Butoxyethanol
ES 3	Widespread use by professional workers; Use in oil and gas field drilling and production operations, on-shore PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC28 - ERC8d 2-Butoxyethanol
ES 4	Use at industrial sites; Use in oil and gas field drilling and production operations, off-shore PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC28 - ERC4 2-Butoxyethanol
ES 5	Use at industrial sites; Use in oil and gas field drilling and production operations, on-shore PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC28 - ERC4 2-Butoxyethanol

1. ES 1: Formulation or re-packing; Formulation & (re)packing of substances and mixtures

1.1. Title section

Environment	
CS1: Formulation or re-packing (Formulation into mixture)	ERC2
Workers	
CS2: Formulation or re-packing (General measures applicable to all activities)	CS135
CS3: Formulation or re-packing (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions)	PROC1
CS4: Formulation or re-packing (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions)	PROC2
CS5: Formulation or re-packing (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure	PROC3

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	or processes with equivalent containment condition)	
CS6:	Formulation or re-packing (Chemical production where opportunity for exposure arises)	PROC4
CS7:	Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities)	PROC8b
CS8:	Formulation or re-packing (Mixing or blending in batch processes)	PROC5
CS9:	Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS10:	Formulation or re-packing (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS11:	Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing))	PROC9
CS12:	Formulation or re-packing (Use as laboratory reagent)	PROC15

1.2. ES 1 Conditions of use affecting exposure

1.2.1 ES 1 - CS 1: Control of environmental exposure: Formulation or re-packing (Formulation into mixture) (ERC2)

Remarks : ESVOC SPERC 2.2.v1

Product characteristics

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Remarks : Non-hydrophobic

Amount used

Annual amount per site : 8330 tonnes/year
Daily amount per site : 27800 kg/day
Daily amount per site (Msafe) : 185.000 kg

Environment factors not influenced by risk management

Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure

Number of emission days per year : 300
Remarks : Continuous process, Continuous release

Technical conditions and measures / Organizational measures

Water : Prevent discharge of undissolved substance to or recover from onsite wastewater.
Remarks : Bund storage facilities to prevent soil and water pollution in the event of spillage.
Prevent environmental discharge consistent with regulatory requirements.
A leak prevention plan is needed to prevent low level continual releases.
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic

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releases.

Conditions and measures related to sewage treatment plant

Type of Sewage Treatment Plant : Sewage treatment plant
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Effectiveness (of a measure) : 87 %

Waste management measures

Disposal methods : Incineration (Effectiveness (of a measure): 99,98 %)
Waste treatment : This material and its container must be disposed of as hazardous., Dispose of waste product or used containers according to local regulations.

1.2.2 ES 1 - CS 2: Control of worker exposure: Formulation or re-packing (General measures applicable to all activities) (CS135)

Product characteristics

Concentration of the Substance in Mixture/Article : <= 100 %
Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration : 8 h
Remarks : Continuous process

Other operational conditions affecting workers exposure

Remarks : Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure that direct skin contact is avoided.
Identify potential areas for indirect skin contact.
Clear spills immediately.
Wash off any skin contamination immediately.
Ensure operatives are trained to minimise exposures.
Avoid direct eye contact with product, also via contamination on hands.
Avoid splashing.

Technical conditions and measures : Formulate in enclosed or ventilated mixing vessels.

Personal protective measures : Use suitable eye protection.
For further specification, refer to section 8 of the SDS.

Personal protective measures : In case of potential exposure:
Wear suitable gloves tested to EN374.
For further specification, refer to section 8 of the SDS.

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1.2.3 ES 1 - CS 3: Control of worker exposure: Formulation or re-packing (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Remarks : General exposures
Closed systems
Continuous process
no sampling

Risk Management Measures

Note : No other specific measures identified.

1.2.4 ES 1 - CS 4: Control of worker exposure: Formulation or re-packing (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Remarks : General exposures
Closed systems
Continuous process
With sample collection
Bulk product storage

Risk Management Measures

Note : No other specific measures identified.

1.2.5 ES 1 - CS 5: Control of worker exposure: Formulation or re-packing (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Remarks : General exposures
Use in contained systems
Batch process
With sample collection
Process sampling

Risk Management Measures

Note : No other specific measures identified.

1.2.6 ES 1 - CS 6: Control of worker exposure: Formulation or re-packing (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : General exposures
Open systems

Risk Management Measures

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Note : No other specific measures identified.

1.2.7 ES 1 - CS 7: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Remarks : Bulk transfers
Drum/batch transfers

Risk Management Measures

Note : No other specific measures identified.

1.2.8 ES 1 - CS 8: Control of worker exposure: Formulation or re-packing (Mixing or blending in batch processes) (PROC5)

Remarks : Mixing operations
Open systems

Risk Management Measures

Note : No other specific measures identified.

1.2.9 ES 1 - CS 9: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers
Manual

Risk Management Measures

Note : No other specific measures identified.

1.2.10 ES 1 - CS 10: Control of worker exposure: Formulation or re-packing (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Note : No other specific measures identified.

1.2.11 ES 1 - CS 11: Control of worker exposure: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing)) (PROC9)

Remarks : Drum and small package filling

Risk Management Measures

Note : No other specific measures identified.

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1.2.12 ES 1 - CS 12: Control of worker exposure: Formulation or re-packing (Use as laboratory reagent) (PROC15)

Remarks : Laboratory activities

Risk Management Measures

Note : No other specific measures identified.

1.3. ES 1 Exposure estimation and reference to its source

1.3.1 ES 1 - CS 1: Environmental release and exposure: Formulation or re-packing (Formulation into mixture) (ERC2)

Release route	Release rate	Release estimation method
Air	0,1 %	ESVOC SPERC 2.2.v1, (Initial release prior to RMM)
Water	0,5 %	ESVOC SPERC 2.2.v1, (Initial release prior to RMM)
Soil	0,01 %	ESVOC SPERC 2.2.v1, (Initial release prior to RMM)

protection target	Exposure estimation and reference to its source (ECETOC TRA)	RCR
Sewage treatment plant	69,5 mg/L (Risk from environmental exposure is driven by wastewater treatment plant microbes.)	0,15
Freshwater	0,885 mg/L	0,10
Freshwater sediment	3,77 mg/kg dry weight	0,11
Marine water	0,0886 mg/L	0,10
Marine sediment	0,377 mg/kg dry weight	0,11
Soil	0,150 mg/kg dry weight	0,06

1.3.3 ES 1 - CS 3: Worker exposure: Formulation or re-packing (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	0,01 ppm (ECETOC TRA worker v3, long-term)	< 0,01
inhalative	0,04 ppm (ECETOC TRA worker v3, short-term)	< 0,01
dermal	0,03 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.4 ES 1 - CS 4: Worker exposure: Formulation or re-packing (Chemical production or refinery in closed continuous process with occasional controlled exposure or

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processes with equivalent containment conditions) (PROC2)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1 ppm (ECETOC TRA worker v3, long-term)	0,05
inhalative	4 ppm (ECETOC TRA worker v3, short-term)	0,08
dermal	1,4 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.5 ES 1 - CS 5: Worker exposure: Formulation or re-packing (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	3 ppm (ECETOC TRA worker v3, long-term)	0,15
inhalative	12 ppm (ECETOC TRA worker v3, short-term)	0,24
dermal	0,69 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.6 ES 1 - CS 6: Worker exposure: Formulation or re-packing (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	5 ppm (ECETOC TRA worker v3, long-term)	0,25
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.7 ES 1 - CS 7: Worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	5 ppm (ECETOC TRA worker v3, long-term)	0,25
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.8 ES 1 - CS 8: Worker exposure: Formulation or re-packing (Mixing or blending in batch processes) (PROC5)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	5 ppm (ECETOC TRA worker v3, long-term)	0,25
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

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1.3.9 ES 1 - CS 9: Worker exposure: Formulation or re-packing (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	10 ppm (ECETOC TRA worker v3, long-term)	0,5
inhalative	40 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.10 ES 1 - CS 10: Worker exposure: Formulation or re-packing (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	10 ppm (ECETOC TRA worker v3, long-term)	0,5
inhalative	40 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.11 ES 1 - CS 11: Worker exposure: Formulation or re-packing (Transfer of substance or mixture into small containers (dedicated filling line, including weighing)) (PROC9)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	5 ppm (ECETOC TRA worker v3, long-term)	0,25
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

1.3.12 ES 1 - CS 12: Worker exposure: Formulation or re-packing (Use as laboratory reagent) (PROC15)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	5 ppm (ECETOC TRA worker v3, long-term)	0,25
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	0,34 mg/kg bw/day (ECETOC TRA worker v3)	

1.4. ES 1 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk management measures are based on qualitative risk characterisation.

Available hazard data do not enable the derivation of a DNEL for eye irritant effects.

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Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet.

2. ES 2: Widespread use by professional workers; Use in oil and gas field drilling and production operations, off-shore

2.1. Title section

Environment	
CS1: Widespread use by professional workers (Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor))	ERC8d
Workers	
CS2: Widespread use by professional workers (General measures applicable to all activities)	CS135
CS3: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at dedicated facilities)	PROC8b
CS4: Widespread use by professional workers (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition)	PROC3
CS5: Widespread use by professional workers (Chemical production where opportunity for exposure arises)	PROC4
CS6: Widespread use by professional workers (Chemical production where opportunity for exposure arises)	PROC4
CS7: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS8: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS9: Widespread use by professional workers (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions)	PROC1
CS10: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS11: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS12: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS13: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS14: Widespread use by professional workers (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions)	PROC2

2.2. ES 2 Conditions of use affecting exposure

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2.2.1 ES 2 - CS 1: Control of environmental exposure: Widespread use by professional workers (Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)) (ERC8d)

Product characteristics

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Remarks : Non-hydrophobic

Amount used

Amounts used (Msafe) : 316.000 kg/day

Other given operational conditions affecting environmental exposure

Number of emission days per year : 365

Remarks : Wide dispersive use, Continuous process

Technical conditions and measures / Organizational measures

Remarks : Prevent environmental discharge consistent with regulatory requirements.

Waste management measures

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations., Dispose of waste product or used containers according to local regulations., This material and its container must be disposed of as hazardous.

2.2.2 ES 2 - CS 2: Control of worker exposure: Widespread use by professional workers (General measures applicable to all activities) (CS135)

Product characteristics

Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration : 12 h

Remarks : Continuous process

Other operational conditions affecting workers exposure

Remarks : Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure there is no direct skin contact with product.
Identify potential areas for indirect skin contact.
Clear spills immediately.
Wash off any skin contamination immediately.

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Ensure operatives are trained to minimise exposures.
Avoid direct eye contact with product, also via contamination on hands.
Avoid splashing.

Personal protective measures : Use suitable eye protection.
For further specification, refer to section 8 of the SDS.

Personal protective measures : In case of potential exposure:
Wear suitable gloves tested to EN374.
For further specification, refer to section 8 of the SDS.

2.2.3 ES 2 - CS 3: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Remarks : Bulk transfers from tote tanks and supply vessels
Filling of equipment from drums or containers

Risk Management Measures

Note : No other specific measures identified.

2.2.4 ES 2 - CS 4: Control of worker exposure: Widespread use by professional workers (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Remarks : Drilling mud (re-)formulation
Treatment and disposal of filtered solids
Process sampling

Risk Management Measures

Note : No other specific measures identified.

2.2.5 ES 2 - CS 5: Control of worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Drill floor operations
Scale squeeze operations

Risk Management Measures

Note : No other specific measures identified.

2.2.6 ES 2 - CS 6: Control of worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Operation of solids filtering equipment
With potential for aerosol generation

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Elevated temperature

Risk Management Measures

Technical conditions and measures : Provide extract ventilation to points where emissions occur.

2.2.7 ES 2 - CS 7: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

2.2.8 ES 2 - CS 8: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Ensure operation is undertaken outdoors.

2.2.9 ES 2 - CS 9: Control of worker exposure: Widespread use by professional workers (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Remarks : Application by injection

Risk Management Measures

Note : No other specific measures identified.

2.2.10 ES 2 - CS 10: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

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Technical conditions and measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Use drum pumps or carefully pour from container.

2.2.11 ES 2 - CS 11: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Technical conditions and measures : Ensure operation is undertaken outdoors.
Use drum pumps or carefully pour from container.

2.2.12 ES 2 - CS 12: Control of worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

2.2.13 ES 2 - CS 13: Control of worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Ensure operation is undertaken outdoors.

2.2.14 ES 2 - CS 14: Control of worker exposure: Widespread use by professional workers (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Remarks : General exposures
Closed systems
Storage

Risk Management Measures

Note : No other specific measures identified.

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2.3. ES 2 Exposure estimation and reference to its source

2.3.1 ES 2 - CS 1: Environmental release and exposure: Widespread use by professional workers (Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)) (ERC8d)

Release route	Release rate	Release estimation method
Air	0 %	
Water	100 %	
Soil	0 %	

protection target	Exposure estimation and reference to its source (CHARM model)	RCR
Marine water	0,000381 mg/L (Risk from environmental exposure is driven by marine water.)	< 0,01
Marine sediment	0,000924 µg/kg dry weight	< 0,01

2.3.3 ES 2 - CS 3: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	13 ppm (ECETOC TRA worker v3, long-term)	0,67
inhalative	39,9 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.4 ES 2 - CS 4: Worker exposure: Widespread use by professional workers (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4 ppm (ECETOC TRA worker v3, long-term)	0,2
inhalative	12 ppm (ECETOC TRA worker v3, short-term)	0,24
dermal	0,69 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.5 ES 2 - CS 5: Worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
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inhalative	13 ppm (ECETOC TRA worker v3, long-term)	0,67
inhalative	39,9 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.6 ES 2 - CS 6: Worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	13 ppm (ECETOC TRA worker v3, long-term)	0,67
inhalative	39,9 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.7 ES 2 - CS 7: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.8 ES 2 - CS 8: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.9 ES 2 - CS 9: Worker exposure: Widespread use by professional workers (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	0,013 ppm (ECETOC TRA worker v3, long-term)	< 0,01
inhalative	0,0399 ppm (ECETOC TRA worker v3, short-term)	< 0,01
dermal	0,03 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.10 ES 2 - CS 10: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)

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(PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.11 ES 2 - CS 11: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.12 ES 2 - CS 12: Worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.13 ES 2 - CS 13: Worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

2.3.14 ES 2 - CS 14: Worker exposure: Widespread use by professional workers (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	6,7 ppm (ECETOC TRA worker v3, long-term)	0,33
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	1,4 mg/kg bw/day (ECETOC TRA worker v3)	

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2.4. ES 2 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk management measures are based on qualitative risk characterisation.

Available hazard data do not enable the derivation of a DNEL for eye irritant effects.

3. ES 3: Widespread use by professional workers; Use in oil and gas field drilling and production operations, on-shore

3.1. Title section

Environment	
CS1: Widespread use by professional workers (Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor))	ERC8d
Workers	
CS2: Widespread use by professional workers (General measures applicable to all activities)	CS135
CS3: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at dedicated facilities)	PROC8b
CS4: Widespread use by professional workers (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition)	PROC3
CS5: Widespread use by professional workers (Chemical production where opportunity for exposure arises)	PROC4
CS6: Widespread use by professional workers (Chemical production where opportunity for exposure arises)	PROC4
CS7: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS8: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS9: Widespread use by professional workers (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions)	PROC1
CS10: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS11: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS12: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS13: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS14: Widespread use by professional workers (Chemical production or refinery in closed continuous process with occasional controlled	PROC2

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exposure or processes with equivalent containment conditions)

3.2. ES 3 Conditions of use affecting exposure

3.2.1 ES 3 - CS 1: Control of environmental exposure: Widespread use by professional workers (Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)) (ERC8d)

Product characteristics

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Remarks : Non-hydrophobic

Amount used

Amounts used (Msafe) : 7.930 kg/day

Other given operational conditions affecting environmental exposure

Number of emission days per year : 365
Remarks : Wide dispersive use, Continuous process

Technical conditions and measures / Organizational measures

Remarks : Bund storage facilities to prevent soil and water pollution in the event of spillage.
Prevent environmental discharge consistent with regulatory requirements.

Conditions and measures related to sewage treatment plant

Type of Sewage Treatment Plant : Onsite Sewage Treatment Plant
Flow rate of sewage treatment plant effluent : 2.000 m3/d
Effectiveness (of a measure) : 87 %

Waste management measures

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations., Dispose of waste product or used containers according to local regulations., This material and its container must be disposed of as hazardous.

3.2.2 ES 3 - CS 2: Control of worker exposure: Widespread use by professional workers (General measures applicable to all activities) (CS135)

Product characteristics

Concentration of the Substance in Mixture/Article : <= 100 %
Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Remarks : Assumes use at not more than 20°C above ambient temperature.

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Frequency and duration of use

Exposure duration : 12 h
Remarks : Continuous process

Other operational conditions affecting workers exposure

Remarks : Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure there is no direct skin contact with product.
Identify potential areas for indirect skin contact.
Clear spills immediately.
Wash off any skin contamination immediately.
Ensure operatives are trained to minimise exposures.
Avoid direct eye contact with product, also via contamination on hands.
Avoid splashing.

Personal protective measures : Use suitable eye protection.
For further specification, refer to section 8 of the SDS.

Personal protective measures : In case of potential exposure:
Wear suitable gloves tested to EN374.
For further specification, refer to section 8 of the SDS.

3.2.3 ES 3 - CS 3: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Remarks : Bulk transfers from tote tanks and supply vessels
Filling of equipment from drums or containers

Risk Management Measures

Note : No other specific measures identified.

3.2.4 ES 3 - CS 4: Control of worker exposure: Widespread use by professional workers (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Remarks : Drilling mud (re-)formulation
Treatment and disposal of filtered solids
Process sampling

Risk Management Measures

Note : No other specific measures identified.

3.2.5 ES 3 - CS 5: Control of worker exposure: Widespread use by professional

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workers (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Drill floor operations
Scale squeeze operations

Risk Management Measures

Note : No other specific measures identified.

3.2.6 ES 3 - CS 6: Control of worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Operation of solids filtering equipment
With potential for aerosol generation
Elevated temperature

Risk Management Measures

Technical conditions and measures : Provide extract ventilation to points where emissions occur.

3.2.7 ES 3 - CS 7: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

3.2.8 ES 3 - CS 8: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Ensure operation is undertaken outdoors.

3.2.9 ES 3 - CS 9: Control of worker exposure: Widespread use by professional workers (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Remarks : Application by injection

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Risk Management Measures

Note : No other specific measures identified.

3.2.10 ES 3 - CS 10: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Technical conditions and measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Use drum pumps or carefully pour from container.

3.2.11 ES 3 - CS 11: Control of worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Technical conditions and measures : Ensure operation is undertaken outdoors.
Use drum pumps or carefully pour from container.

3.2.12 ES 3 - CS 12: Control of worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

3.2.13 ES 3 - CS 13: Control of worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Ensure operation is undertaken outdoors.

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3.2.14 ES 3 - CS 14: Control of worker exposure: Widespread use by professional workers (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Remarks : General exposures
Closed systems
Storage

Risk Management Measures

Note : No other specific measures identified.

3.3. ES 3 Exposure estimation and reference to its source

3.3.1 ES 3 - CS 1: Environmental release and exposure: Widespread use by professional workers (Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)) (ERC8d)

Release route	Release rate	Release estimation method
Air	0,5 %	
Water	7 %	
Soil	0 %	

protection target	Exposure estimation and reference to its source (ECETOC TRA)	RCR
Sewage treatment plant	0,623 mg/L	< 0,01
Freshwater	0,152 mg/L (Risk from environmental exposure is driven by freshwater.)	0,02
Freshwater sediment	0,596 mg/kg dry weight (Risk from environmental exposure is driven by freshwater sediment.)	0,02
Soil	0,0000359 mg/kg dry weight	< 0,01

3.3.3 ES 3 - CS 3: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	13 ppm (ECETOC TRA worker v3, long-term)	0,67
inhalative	39,9 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.4 ES 3 - CS 4: Worker exposure: Widespread use by professional workers

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(Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4 ppm (ECETOC TRA worker v3, long-term)	0,2
inhalative	12 ppm (ECETOC TRA worker v3, short-term)	0,24
dermal	0,69 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.5 ES 3 - CS 5: Worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	13 ppm (ECETOC TRA worker v3, long-term)	0,67
inhalative	39,9 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.6 ES 3 - CS 6: Worker exposure: Widespread use by professional workers (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	13 ppm (ECETOC TRA worker v3, long-term)	0,67
inhalative	39,9 ppm (ECETOC TRA worker v3, short-term)	0,8
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.7 ES 3 - CS 7: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.8 ES 3 - CS 8: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23

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inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.9 ES 3 - CS 9: Worker exposure: Widespread use by professional workers (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	0,013 ppm (ECETOC TRA worker v3, long-term)	< 0,01
inhalative	0,0399 ppm (ECETOC TRA worker v3, short-term)	< 0,01
dermal	0,03 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.10 ES 3 - CS 10: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.11 ES 3 - CS 11: Worker exposure: Widespread use by professional workers (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.12 ES 3 - CS 12: Worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.13 ES 3 - CS 13: Worker exposure: Widespread use by professional workers (Manual maintenance (cleaning and repair) of machinery) (PROC28)

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Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4,7 ppm (ECETOC TRA worker v3, long-term)	0,23
inhalative	14 ppm (ECETOC TRA worker v3, short-term)	0,28
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

3.3.14 ES 3 - CS 14: Worker exposure: Widespread use by professional workers (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	6,7 ppm (ECETOC TRA worker v3, long-term)	0,33
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	1,4 mg/kg bw/day (ECETOC TRA worker v3)	

3.4. ES 3 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk management measures are based on qualitative risk characterisation.

Available hazard data do not enable the derivation of a DNEL for eye irritant effects.

4. ES 4: Use at industrial sites; Use in oil and gas field drilling and production operations, off-shore

4.1. Title section

Environment		
CS1: Use at industrial sites (Use of non-reactive processing aid at industrial site (no inclusion into or onto article))		ERC4
Workers		
CS2: Use at industrial sites (General measures applicable to all activities)		CS135
CS3: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at dedicated facilities)		PROC8b
CS4: Use at industrial sites (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition)		PROC3
CS5: Use at industrial sites (Chemical production where opportunity for exposure arises)		PROC4
CS6: Use at industrial sites (Chemical production where opportunity for exposure arises)		PROC4
CS7: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)		PROC8a

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CS8: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS9: Use at industrial sites (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions)	PROC1
CS10: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS11: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS12: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS13: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS14: Use at industrial sites (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions)	PROC2

4.2. ES 4 Conditions of use affecting exposure

4.2.1 ES 4 - CS 1: Control of environmental exposure: Use at industrial sites (Use of non-reactive processing aid at industrial site (no inclusion into or onto article)) (ERC4)

Product characteristics

Physical Form (at time of use)	: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Remarks	: Non-hydrophobic

Amount used

Daily amount per site	: 137 kg/day
Annual amount per site	: 50 tonnes/year
Daily amount per site (Msafe)	: 316.000 kg

Other given operational conditions affecting environmental exposure

Number of emission days per year	: 365
Remarks	: Continuous process, Continuous release

Technical conditions and measures / Organizational measures

Remarks	: Prevent environmental discharge consistent with regulatory requirements.
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Waste management measures

Waste treatment	: External treatment and disposal of waste should comply with applicable local and/or national regulations., Dispose of waste product or used containers according to local regulations., This material and its container must be disposed of as hazardous.
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4.2.2 ES 4 - CS 2: Control of worker exposure: Use at industrial sites (General measures applicable to all activities) (CS135)

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Product characteristics

Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration : 12 h

Remarks : Continuous process

Other operational conditions affecting workers exposure

Remarks : Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure there is no direct skin contact with product.
Identify potential areas for indirect skin contact.
Clear spills immediately.
Wash off any skin contamination immediately.
Ensure operatives are trained to minimise exposures.
Avoid direct eye contact with product, also via contamination on hands.
Avoid splashing.

Personal protective measures : Use suitable eye protection.
For further specification, refer to section 8 of the SDS.

Personal protective measures : In case of potential exposure:
Wear suitable gloves tested to EN374.
For further specification, refer to section 8 of the SDS.

4.2.3 ES 4 - CS 3: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Remarks : Bulk transfers from tote tanks and supply vessels
Filling of equipment from drums or containers

Risk Management Measures

Note : No other specific measures identified.

4.2.4 ES 4 - CS 4: Control of worker exposure: Use at industrial sites (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Remarks : Drilling mud (re-)formulation
Treatment and disposal of filtered solids
Process sampling

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Risk Management Measures

Note : No other specific measures identified.

4.2.5 ES 4 - CS 5: Control of worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Drill floor operations
Scale squeeze operations

Risk Management Measures

Note : No other specific measures identified.

4.2.6 ES 4 - CS 6: Control of worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Operation of solids filtering equipment
With potential for aerosol generation
Elevated temperature

Risk Management Measures

Technical conditions and measures : Provide extract ventilation to points where emissions occur.

4.2.7 ES 4 - CS 7: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

4.2.8 ES 4 - CS 8: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operation is undertaken outdoors.

Technical conditions and measures : Drain down system prior to equipment break-in or

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measures maintenance.

4.2.9 ES 4 - CS 9: Control of worker exposure: Use at industrial sites (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Remarks : Application by injection

Risk Management Measures

Note : No other specific measures identified.

4.2.10 ES 4 - CS 10: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Technical conditions and measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

4.2.11 ES 4 - CS 11: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operation is undertaken outdoors.

4.2.12 ES 4 - CS 12: Control of worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Technical conditions and measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

4.2.13 ES 4 - CS 13: Control of worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

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Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operation is undertaken outdoors.

4.2.14 ES 4 - CS 14: Control of worker exposure: Use at industrial sites (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Remarks : General exposures
Closed systems
Storage
With sample collection

Risk Management Measures

Note : No other specific measures identified.

4.3. ES 4 Exposure estimation and reference to its source

4.3.1 ES 4 - CS 1: Environmental release and exposure: Use at industrial sites (Use of non-reactive processing aid at industrial site (no inclusion into or onto article)) (ERC4)

Release route	Release rate	Release estimation method
Air	0 %	(Initial release prior to RMM)
Water	100 %	(Initial release prior to RMM)
Soil	0 %	(Initial release prior to RMM)

protection target	Exposure estimation and reference to its source (CHARM model)	RCR
Marine water	0,000381 mg/L (Risk from environmental exposure is driven by marine water.)	< 0,01
Marine sediment	0,000924 µg/kg dry weight	< 0,01

4.3.3 ES 4 - CS 3: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	6,7 ppm (ECETOC TRA worker v3, long-term)	0,33
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.4 ES 4 - CS 4: Worker exposure: Use at industrial sites (Manufacture or formulation in the chemical industry in closed batch processes with occasional

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controlled exposure or processes with equivalent containment condition) (PROC3)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4 ppm (ECETOC TRA worker v3, long-term)	0,2
inhalative	12 ppm (ECETOC TRA worker v3, short-term)	0,24
dermal	0,69 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.5 ES 4 - CS 5: Worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	6,7 ppm (ECETOC TRA worker v3, long-term)	0,33
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.6 ES 4 - CS 6: Worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	2,7 ppm (ECETOC TRA worker v3, long-term)	0,13
inhalative	7,98 ppm (ECETOC TRA worker v3, short-term)	0,16
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.7 ES 4 - CS 7: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1,9 ppm (ECETOC TRA worker v3, long-term)	0,09
inhalative	5,59 ppm (ECETOC TRA worker v3, short-term)	0,11
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.8 ES 4 - CS 8: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1,9 ppm (ECETOC TRA worker v3, long-term)	0,09
inhalative	5,59 ppm (ECETOC TRA worker v3, short-term)	0,11
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

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4.3.9 ES 4 - CS 9: Worker exposure: Use at industrial sites (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	0,013 ppm (ECETOC TRA worker v3, long-term)	< 0,01
inhalative	0,0399 ppm (ECETOC TRA worker v3, short-term)	< 0,01
dermal	0,03 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.10 ES 4 - CS 10: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.11 ES 4 - CS 11: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.12 ES 4 - CS 12: Worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

4.3.13 ES 4 - CS 13: Worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

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4.3.14 ES 4 - CS 14: Worker exposure: Use at industrial sites (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1,3 ppm (ECETOC TRA worker v3, long-term)	0,07
inhalative	3,99 ppm (ECETOC TRA worker v3, short-term)	0,08
dermal	1,4 mg/kg bw/day (ECETOC TRA worker v3)	

4.4. ES 4 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk management measures are based on qualitative risk characterisation.

Available hazard data do not enable the derivation of a DNEL for eye irritant effects.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

5. ES 5: Use at industrial sites; Use in oil and gas field drilling and production operations, on-shore

5.1. Title section

Environment		
CS1: Use at industrial sites (Use of non-reactive processing aid at industrial site (no inclusion into or onto article))		ERC4
Workers		
CS2: Use at industrial sites (General measures applicable to all activities)		CS135
CS3: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at dedicated facilities)		PROC8b
CS4: Use at industrial sites (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition)		PROC3
CS5: Use at industrial sites (Chemical production where opportunity for exposure arises)		PROC4
CS6: Use at industrial sites (Chemical production where opportunity for exposure arises)		PROC4
CS7: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)		PROC8a
CS8: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)		PROC8a

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CS9: Use at industrial sites (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions)	PROC1
CS10: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS11: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities)	PROC8a
CS12: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS13: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery)	PROC28
CS14: Use at industrial sites (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions)	PROC2

5.2. ES 5 Conditions of use affecting exposure

5.2.1 ES 5 - CS 1: Control of environmental exposure: Use at industrial sites (Use of non-reactive processing aid at industrial site (no inclusion into or onto article)) (ERC4)

Product characteristics

Physical Form (at time of use)	: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Remarks	: Non-hydrophobic

Amount used

Annual amount per site	: 50 tonnes/year
Daily amount per site	: 137 kg/day
Daily amount per site (Msafe)	: 7.930 kg

Environment factors not influenced by risk management

Dilution Factor (River)	: 10
Dilution Factor (Coastal Areas)	: 100

Other given operational conditions affecting environmental exposure

Number of emission days per year	: 365
Remarks	: Continuous process, Continuous release

Technical conditions and measures / Organizational measures

Water	: Do not let product enter drains.
Remarks	: Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.

Conditions and measures related to sewage treatment plant

Type of Sewage Treatment Plant	: Onsite Sewage Treatment Plant
Flow rate of sewage treatment plant effluent	: 2.000 m3/d
Effectiveness (of a measure)	: 87 %

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Waste management measures

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations., Dispose of waste product or used containers according to local regulations., This material and its container must be disposed of as hazardous.

5.2.2 ES 5 - CS 2: Control of worker exposure: Use at industrial sites (General measures applicable to all activities) (CS135)

Product characteristics

Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration : 12 h

Remarks : Continuous process

Other operational conditions affecting workers exposure

Remarks : Assumes a good basic standard of occupational hygiene is implemented

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure there is no direct skin contact with product.
Identify potential areas for indirect skin contact.
Clear spills immediately.
Wash off any skin contamination immediately.
Ensure operatives are trained to minimise exposures.
Avoid direct eye contact with product, also via contamination on hands.
Avoid splashing.

Personal protective measures : Use suitable eye protection.
For further specification, refer to section 8 of the SDS.

Personal protective measures : In case of potential exposure:
Wear suitable gloves tested to EN374.
For further specification, refer to section 8 of the SDS.

5.2.3 ES 5 - CS 3: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

Remarks : Bulk transfers from tote tanks and supply vessels
Filling of equipment from drums or containers

Risk Management Measures

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Note : No other specific measures identified.

5.2.4 ES 5 - CS 4: Control of worker exposure: Use at industrial sites (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Remarks : Drilling mud (re-)formulation
Treatment and disposal of filtered solids
Process sampling

Risk Management Measures

Note : No other specific measures identified.

5.2.5 ES 5 - CS 5: Control of worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Drill floor operations
Scale squeeze operations

Risk Management Measures

Note : No other specific measures identified.

5.2.6 ES 5 - CS 6: Control of worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Remarks : Operation of solids filtering equipment
With potential for aerosol generation
Elevated temperature

Risk Management Measures

Technical conditions and measures : Provide extract ventilation to points where emissions occur.

5.2.7 ES 5 - CS 7: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

5.2.8 ES 5 - CS 8: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

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Remarks : Cleaning of solids filtering equipment

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operation is undertaken outdoors.

Technical conditions and measures : Drain down system prior to equipment break-in or maintenance.

5.2.9 ES 5 - CS 9: Control of worker exposure: Use at industrial sites (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Remarks : Application by injection

Risk Management Measures

Note : No other specific measures identified.

5.2.10 ES 5 - CS 10: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Technical conditions and measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

5.2.11 ES 5 - CS 11: Control of worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Remarks : Transfer from/pouring from containers

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operation is undertaken outdoors.

5.2.12 ES 5 - CS 12: Control of worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Technical conditions and measures : Provide a good standard of general ventilation (not less than 3

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measures to 5 air changes per hour).

5.2.13 ES 5 - CS 13: Control of worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Remarks : Equipment cleaning and maintenance

Risk Management Measures

Organisational measures to prevent /limit releases, dispersion and exposure : Ensure operation is undertaken outdoors.

5.2.14 ES 5 - CS 14: Control of worker exposure: Use at industrial sites (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Remarks : General exposures
Closed systems
Storage
With sample collection

Risk Management Measures

Note : No other specific measures identified.

5.3. ES 5 Exposure estimation and reference to its source

5.3.1 ES 5 - CS 1: Environmental release and exposure: Use at industrial sites (Use of non-reactive processing aid at industrial site (no inclusion into or onto article)) (ERC4)

Release route	Release rate	Release estimation method
Air	0,5 %	(Initial release prior to RMM)
Water	7 %	(Initial release prior to RMM)
Soil	0 %	(Initial release prior to RMM)

protection target	Exposure estimation and reference to its source ()	RCR
Sewage treatment plant	0,623 mg/L	< 0,01
Freshwater	0,152 mg/L (Risk from environmental exposure is driven by freshwater.)	0,02
Freshwater sediment	0,596 mg/kg dry weight	0,02
Soil	0,0000359 mg/kg dry weight	< 0,01

5.3.3 ES 5 - CS 3: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at dedicated facilities) (PROC8b)

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Route of exposure and type of effects	Exposure estimate	RCR
inhalative	6,7 ppm (ECETOC TRA worker v3, long-term)	0,33
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.4 ES 5 - CS 4: Worker exposure: Use at industrial sites (Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition) (PROC3)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	4 ppm (ECETOC TRA worker v3, long-term)	0,2
inhalative	12 ppm (ECETOC TRA worker v3, short-term)	0,24
dermal	0,69 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.5 ES 5 - CS 5: Worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	6,7 ppm (ECETOC TRA worker v3, long-term)	0,33
inhalative	20 ppm (ECETOC TRA worker v3, short-term)	0,4
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.6 ES 5 - CS 6: Worker exposure: Use at industrial sites (Chemical production where opportunity for exposure arises) (PROC4)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	2,7 ppm (ECETOC TRA worker v3, long-term)	0,13
inhalative	7,98 ppm (ECETOC TRA worker v3, short-term)	0,16
dermal	6,9 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.7 ES 5 - CS 7: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1,9 ppm (ECETOC TRA worker v3, long-term)	0,09
inhalative	5,59 ppm (ECETOC TRA worker v3, short-term)	0,11
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.8 ES 5 - CS 8: Worker exposure: Use at industrial sites (Transfer of substance or

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mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1,9 ppm (ECETOC TRA worker v3, long-term)	0,09
inhalative	5,59 ppm (ECETOC TRA worker v3, short-term)	0,11
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.9 ES 5 - CS 9: Worker exposure: Use at industrial sites (Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions) (PROC1)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	0,013 ppm (ECETOC TRA worker v3, long-term)	< 0,01
inhalative	0,0399 ppm (ECETOC TRA worker v3, short-term)	< 0,01
dermal	0,03 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.10 ES 5 - CS 10: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.11 ES 5 - CS 11: Worker exposure: Use at industrial sites (Transfer of substance or mixture (charging/discharging) at non dedicated-facilities) (PROC8a)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.12 ES 5 - CS 12: Worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

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5.3.13 ES 5 - CS 13: Worker exposure: Use at industrial sites (Manual maintenance (cleaning and repair) of machinery) (PROC28)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	9,3 ppm (ECETOC TRA worker v3, long-term)	0,47
inhalative	27,9 ppm (ECETOC TRA worker v3, short-term)	0,56
dermal	14 mg/kg bw/day (ECETOC TRA worker v3)	

5.3.14 ES 5 - CS 14: Worker exposure: Use at industrial sites (Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions) (PROC2)

Route of exposure and type of effects	Exposure estimate	RCR
inhalative	1,3 ppm (ECETOC TRA worker v3, long-term)	0,07
inhalative	3,99 ppm (ECETOC TRA worker v3, short-term)	0,08
dermal	1,4 mg/kg bw/day (ECETOC TRA worker v3)	

5.4. ES 5 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Risk management measures are based on qualitative risk characterisation.

Available hazard data do not enable the derivation of a DNEL for eye irritant effects.

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



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SAFTEY DATA SHEET

Oxygen Scavenger

1 Identification

Product identifier

Trade name: Oxygen Scavenger

EC number: 207-837-2

Application of the substance / the mixture

Controls oxygen pitting in low and high pressure steam boilers.

Details of the supplier of the safety data sheet

Manufacturer/Supplier

Manufactured by: Jay Dinesh Chemical Survey No. 184 to 186, Nr. Claris Village Chacharawadi – Vasna, Sarkhej Bawla Highway, Ta. Sanad, Dist Ahmedabad–382213.

Information department

Customer Service Department - Jay Dinesh Chemicals

Contact: Mis. Purvi. Shah.

e-mail: exports@jaydinesh.com

Emergency telephone number

During normal opening time:- +917878730626

2 Hazard(s) Identification

Classification of the Substance or Mixture

Classification (GHS-US)

Skin Irrit. 2	H315
Eye Irrit. 2A	H319
Carc. 1A	H350
STOTRE 1	H372

Label elements

GHS label elements

Hazard pictograms



Signal word: Danger



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Hazard statements

Causes serious eye damage.

Precautionary statements

Wear protective gloves/protective clothing/eye protection/face protection

Supplemental Hazard Statements none

Other hazards
Lachrymator

3 Composition/information on ingredients

Chemical characterization: Substances

Mixture

Chemical Name	CAS No	Weight-%
Proprietary	Proprietary	7-13
Proprietary	Proprietary	5-10
Proprietary	Proprietary	<5

4 First-Aid Measures

Description of first aid measures

After inhalation: Remove to fresh air.

After skin contact: Wash off immediately with plenty of water for at least 15 minutes.

After eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

After swallowing: If symptoms persist consult doctor.

Information for doctor:

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-Fighting Measures

Extinguishing media

Suitable extinguishing agents:

Water spray, dry foam, carbon dioxide.

Special hazards arising from the substance or mixture: In the presence of fire, this product may produce sulfur dioxide. May react with active metals (aluminum, zinc and magnesium) liberating hydrogen gas.

Advice for firefighters



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Protective equipment: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH

6 Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment as required

Environmental precautions: Do not let product enter drains

Methods and material for containment and cleaning up:

Small spills: Soak up with an inert absorbent and place in designated disposal container. Large spills: Spills should be contained and soaked up with an inert absorbent and place in designated disposal container to await proper treatment or disposal.

7 Handling and Storage

Handling:

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Wear protective gloves/protective clothing and eye/face protection

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and receptacles: Store in cool, dry conditions and well ventilated area.

Information about storage in one common storage facility: Do not store together with acids.

Further information about storage conditions: Keep containers tightly closed when not in use. Store away from heat, open flames and incompatible materials. Store in cool, dry, ventilated area. Keep from freezing. Keep out of reach of children

Specific end use(s) No further relevant information available.

8 Exposure Controls/Personal Protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace: Not required.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:



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Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands:

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

Material of gloves

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

Penetration time of glove material

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

Eye protection:



Tightly sealed goggles

9 Physical and Chemical Properties

Information on basic physical and chemical properties

General Information

Appearance:	Clear, pale amber to water, water white liquid
Odor:	Odorless
Odor threshold :	No data available

pH-value: 6-8

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	100 °C / 212 °F

Specific gravity / density 1.185

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.

Ignition temperature:

Decomposition temperature: Not determined



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Auto igniting:	Not determined
Danger of explosion:	No data available
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not determined.
Density:	Not determined.
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not applicable.
Solubility in / Miscibility with Water:	Miscible in water
Partition coefficient (n-octanol/water):	Not applicable.
Viscosity:	No data available

10 Stability and Reactivity

Reactivity :Not reactive under normal conditions

Chemical stability : Stable under recommended storage conditions

Thermal decomposition / conditions to be avoided: This is a stable product under normal (ambient) temperature and pressure.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid:Moisture. Avoid creating or spreading dust.

Incompatible materials: Strong acids. Metals. Halogens.

Hazardous decomposition products: No data available .

11 Toxicological Information

Information on toxicological effects

Acute toxicity:

LD50 Oral - Rat: 502 - 638 mg/kg
LC50 Inhalation - Rat - male and female: > 2.1 mg/l (4h)
(OECD Test Guideline 403)
Dermal: No data available

Primary irritant effect:

on the skin:

Avoid contact with skin

on the eye:

Causes serious eye damage



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Sensitization:	mouse Result: Does not cause skin sensitization. (OECD Test Guideline 429)
Additional toxicological information:	
Carcinogenic categories	This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification
IARC (International Agency for Research on Cancer):	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
NTP (National Toxicology Program):	No component of this product, present at levels greater than or equal to 0.1%, is identified as a known or anticipated carcinogen by NTP.
OSHA-Ca (Occupational Safety & Health Administration) :	No component of this product, present at levels greater than or equal to 0.1%, is identified as a carcinogen or potential carcinogen by OSHA.

12 Ecological Information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behavior in environmental systems

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13 Disposal Considerations (non-mandatory)

Waste treatment methods

Recommendation:



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Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations

Uncleaned packagings

Recommendation: Disposal must be made according to official regulations

14 Transport Information (non-mandatory)

UN-Number	
DOT, ADR, ADN, IMDG, IATA	Void
UN proper shipping name	
DOT, ADN, IMDG, IATA	Void
ADR	Void
Transport hazard class(es)	
DOT	
Class	Void
ADR, ADN, IMDG, IATA	
Class	Not restricted for transport
Packing group	
DOT, ADR, IMDG, IATA	Void
Environmental hazards	
Marine pollutant	No
Special precautions for user	Not applicable.
UN "Model Regulation"	Void

15 Regulatory Information (non-mandatory)

substance or mixture

Section 355 (extremely hazardous substances): Substance is not listed.

Section 313 (Specific toxic chemical listings): Substance is not listed.

TSCA (Toxic Substances Control Act): Substance is listed.

Proposition 65

Chemicals known to cause cancer: Substance is not listed.

Chemicals known to cause reproductive toxicity for females: Substance is not listed.

Chemicals known to cause reproductive toxicity for males: Substance is not listed.

Chemicals known to cause developmental toxicity: Substance is not listed.

Carcinogenic categories



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EPA (Environmental Protection Agency):	Substance is not listed.
TLV (Threshold Limit Value established by ACGIH):	Substance is not listed.
NIOSH-Ca (National Institute for Occupational Safety and Health):	Substance is not listed.
GHS label elements:	The substance is classified and labeled according to the
Hazard pictograms	
	
GHS05	
Signal word:	Danger
Hazard statements:	Causes serious eye damage.
Precautionary statements:	Wear eye protection / face protection. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
Chemical safety assessment:	A Chemical Safety Assessment has not been carried out.

16 Other Information

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

Department issuing SDS: Quality Control Department

Contact: Mis Purvi. Shah.

e-mail: exports@jaydinesh.com

Date of preparation / last revision 04/18/2019 / -

Abbreviations and acronyms:

NFPA health hazard

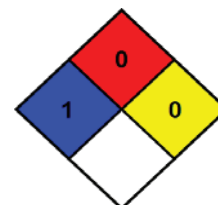
1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard

0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

0 - Material that in themselves are normally stable, even under fire conditions.



Data compared to the previous version altered.

Revision Information: 01/2016, Sections 1, 2 revised - Information department and GHS label.

Revision Information: 01/2017, Added new ABCT Logo



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Chemicals**
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