

SAFETY DATA SHEET

Regulation (EC) No 1907/2006 (REACH), Article 31

Revision date: 19-Oct-2020

Version: 6

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

1.1. Product Identifier

Product code: FORMDRILLINGMUD
Product name: Formate Drilling Fluid
REACH Registration Number: See Section 3
Synonyms: CsCOOH-H2O, Cesium Formate Brine

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

Recommended use: Drilling & completion fluids: Industrial Products

Identified Uses and corresponding Exposure Scenarios (ES):
ES1: Handling of Cesium Formate Brine products at oil/gas well sites,
ES2: Transport/Transfer of Cesium Formate Brine products;
ES3: Recycling and Disposal of Cesium Formate Brine products

Uses advised against: None known. However incompatibility with some materials has been reported. Please refer to our Formate Technical Manual section B7 and the section 10 of this safety data sheet.

1.3. Details of the supplier of the safety data sheet

Sinomine Specialty Fluids
Ocean House
Hareness Circle
Altens Industrial Estate
Aberdeen AB12 3LY
SCOTLAND
Tel: (+44) 1224-897229
Fax: (+44) 1224-870089
E-mail:
enquire@sinominecorp.com

E-mail address: enquire@sinominecorp.com

1.4. Emergency telephone number

Emergency Telephone Number: 24H/7d service - Reference Access code: 335324

VERISK Europe: +44 8 08 189 0979
VERISK UK: 0 800 680 0425
VERISK US: +1 760 476 3961

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute toxicity - Oral	Category 4 - (H302)
Serious eye damage/eye irritation:	Category 2 - (H319)
Reproductive toxicity	Category 2 - (H361f)
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)

2.2. Label Elements



Signal Word:
WARNING

Hazard statements:

H302 - Harmful if swallowed

H319 - Causes serious eye irritation

H361f - Suspected of damaging fertility

H373 - May cause damage to organs (kidneys, adrenals, nervous system, blood) through prolonged or repeated exposure

Precautionary statements:

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P270 - Do not eat, drink or smoke when using this product

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P330 - Rinse mouth

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

P264 - Wash face, hands and any exposed skin thoroughly after handling

P405 - Store locked up

P501 - Dispose of contents/container in accordance with local, regional, national and international regulations

2.3. Other Hazards

Principle Routes of Exposure: Eye contact, Skin Contact, Inhalation

Skin Contact: May cause irritation. Avoid contact with skin.

Inhalation:	Due to its liquid state, this material is not expected to be a significant inhalation hazard. Aerosols or dried product may be irritating to respiratory tract. Do not breathe dust, vapors or mist.
Ingestion:	Adverse effects on multiple organ systems were observed in animals following repeated oral exposure to cesium formate. However, these effects would not be expected under normal handling conditions. See Section 11.
Reproductive Effects:	Male Reproductive System. See Section 11.
Carcinogenicity:	Does not contain any substances listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference of Governmental Industrial Hygienists) or EU (European Union). See also Section 11.
Target Organ Effects:	Eyes, Skin, Respiratory system, Nervous system, Kidney, Adrenal gland
Medical Conditions Aggravated by Exposure:	Kidney disorders, Adrenal gland disorders
Potential Environmental Effects:	None known. See Section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not Applicable

3.2 Mixtures

Chemical name	EC No:	CAS No	weight-%	Classification according to Directive 67/548/EEC or 1999/45/EC	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Cesium Formate	222-492-8	3495-36-1	1-84	Xn;R48/22 Xi;R36	Acute Tox. 4 - H302; Eye Irr. 2 - H319; Repro 2 - H361; STOT RE 2 - H373	01-0000000312-89
Potassium formate	209-677-9	590-29-4	1-76	-	-	01-2119486456-26
Water	231-791-2	7732-18-5	>13	-	-	*

Other Information:

* Exempt

The hyphen (-) means "not applicable"

Cesium Formate may contain up to 5% of "other alkali formates" as impurities resulting from our production process. Those alkali formates are not intentionally added in our cesium formate brine but are part of our substance "Cesium Formate" (per the definition of a substance in Article 3 of the REACH Regulation) and cannot be removed from the material. Those impurities have been tested as part of our product.

This product may contain several additives. Those additives are not classified as hazardous per CLP Regulation criteria and therefore are not required to be disclosed in this section.

4. FIRST AID MEASURES

4.1. Description of first aid measures

Skin Contact	Wash thoroughly with soap and water. Remove contaminated clothing and shoes. Seek medical attention if redness, swelling, itching, or burning occurs.
Eye contact	Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if redness, swelling, itching, burning or visual disturbances occur.
Inhalation	If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.
Ingestion	Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person. Seek medical attention.

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

Symptoms:	The most important known symptoms and effects are described in Section 2 and/or in Section 11.
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians:	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use foam, carbon dioxide (CO ₂), dry chemical or water spray. A fog is recommended if water is used.
Unsuitable Extinguishing Media:	DO NOT USE a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical:	Burning produces irritant fumes.
Hazardous combustion products:	Carbon monoxide (CO). Carbon dioxide (CO ₂). Oxides of Cesium, Mixture of inorganic salts, Hydrocarbons.

5.3. Advice for firefighters

Special protective equipment for fire-fighters	Wear suitable protective equipment. In the event of fire, wear self-contained breathing apparatus.
Risk of Dust Explosion:	Not Applicable: Formate Drilling Fluid/Mud is an aqueous solution. See also Section 9.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid formation of dust and aerosols. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.

For emergency responders: Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental Precautions: Contain spill if safe to do so. Local authorities should be advised if significant spillages cannot be contained. See also Section 13.

6.3. Methods and material for containment and cleaning up

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers. See Section 13.

6.4. Reference to other sections

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

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Do not breathe aerosols or dust from dried material. Provide appropriate exhaust ventilation at machinery and at places where dust, aerosol, or mist can be generated. Avoid ingestion. Avoid prolonged or repeated exposure.

General hygiene considerations: Wash the hands and the face carefully after handling. Contaminated clothes have to be changed and washed before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Do not store together with strong oxidizing agents.

Incompatible materials: Strong oxidizing agents, Platinum catalysts. NBR or Viton type elastomers at high temperature and long exposure times.

7.3. Specific end use(s)

Risk Management Measures (RMM) See Exposure Scenarios.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure guidelines: There are no exposure limits identified for this product.

Derived No Effect Level (DNEL)	Cesium formate: Exposure via oral route is unlikely under normal foreseeable conditions of uses. DNEL - INHALATION for workers: 0.53 mg/m ³ DNEL - DERMAL for workers: 0.08 mg/kg bw/d
Predicted No Effect Concentration (PNEC)	No PNECS have been derived for this mixture. PNEC Calculations for Cesium Formate Brine are: PNEC aqua - freshwater: 0.1 mg/L. PNEC aqua - marine: 2.6 mg/L. PNEC aqua - intermittent releases: 1 mg/L. PNEC sediment: 6.7mg/kg d.w.

8.2. Exposure controls

Engineering Controls: Ensure adequate ventilation to minimize exposures.

Personal protective equipment [PPE]

Respiratory Protection: Approved respirator may be necessary if local exhaust ventilation is not adequate. Respiratory protection in accordance with EN 149 and OSHA 1910.134.

Hand Protection: Wear suitable gloves (in accordance with EN 374 and OSHA 1910.138). Impervious gloves. Neoprene gloves. Nitrile rubber gloves. PVC or rubber gloves. PVC or other plastic material gloves.

Eye/face Protection: Eye / face protection in accordance with EN 166 and OSHA 1910.133. Wear face-shield if splashes are likely to occur. Wear safety glasses with side shields (or goggles).

Skin and Body Protection: Wear chemical impervious protective clothing if skin contact may occur.

Other: Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

Environmental exposure controls: In accordance with all local legislation and permit requirements.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	Odor:	None.
Appearance:	Viscous liquid	Odor threshold:	Not Applicable
Color:	Brown		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH:	9 - 11	(measured in 1:10 dilution with water)
Melting point/freezing point:		No information available
Boiling point / boiling range:	102 °C - 145 °C	See Sinomine Specialty Fluid's Formate Technical Manual
Evaporation Rate:		No information available
Vapor pressure:	400 - 2250 Pa	measured on cesium formate brine acc. to OECD 104
Vapor Density:		No information available
Density:	1.05 - 2.40 g/cm ³	@ 20 °C
Bulk Density:		Not Applicable
Specific Gravity at 20°C:	1.05 - 2.4	
Water solubility:		No information available
Solubility(ies):		See Sinomine Specialty Fluid's Formate Technical Manual
Partition Coefficient (n-octanol/water):		No information available

Decomposition temperature:	No information available
Viscosity: 1 - 300 cP	@ 20 °C
Kinematic viscosity:	No information available
Dynamic viscosity:	No information available
Oxidizing Properties:	Contains Cesium Formate: Mildreducing agent, which when in contact with oxidants, can react vigourously
Softening point:	Not Applicable
VOC content (%):	Not Applicable
% Volatile (by Volume):	No information available
% Volatile (by Weight):	No information available
Surface Tension:	No information available
Explosive properties:	Not Applicable: Aqueous solution with low vapour pressure; No chemical groups associated with flammable or explosive properties
Flash Point:	Not Applicable
Flammability (solid, gas):	Not Applicable
Flammability Limit in Air:	Not Applicable
Explosion Limits in Air - Upper (g/m³):	Not Applicable
Explosion Limits in Air - Lower (g/m³):	Not Applicable
Autoignition Temperature:	Not Applicable
Minimum Ignition Temperature:	Not Applicable
Minimum Ignition Energy:	Not Applicable
Ignition Energy:	No information available
Maximum Absolute Explosion Pressure:	Not Applicable
Maximum Rate of Pressure Rise:	Not Applicable
Burn Velocity:	Not Applicable
Kst Value:	Not Applicable
Dust Explosion Classification:	Not Applicable

"No information available" indicates testing has not been performed. Endpoint is listed "Not Applicable" due to the nature of the product: Aqueous solution with low vapour pressure

10. STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity: Reacts with strong oxidizers.

10.2. Chemical stability

Stability: Stable under recommended handling and storage conditions.

Explosion data

Sensitivity to Mechanical Impact: None

Sensitivity to Static Discharge: None.

10.3. Possibility of hazardous reactions

Hazardous polymerization: Hazardous polymerization does not occur.

Possibility of hazardous reactions: None under normal processing.

10.4. Conditions to avoid

Conditions to avoid: Avoid contact with strong oxidizing agents. During long exposures to high temperatures, and in contact with certain catalysts, some liberation of gasses (H₂ and CO) might occur. The greatest risk exists when dry formate powder is contacted by a platinum catalyst. Users are advised to obtain the Sinomine Specialty Fluid's (SSF) Formate Technical Manual, Section A13 from a SSF representative for more detailed information on conditions to avoid. SSF does not recommend retorting formate solutions to determine solids content as temperatures may exceed 500 °C. The use of rupture disks is recommended as a precautionary measure when conducting heat aging of formate solutions at temperatures above 150 °C.

10.5. Incompatible materials

Incompatible materials: Strong oxidizing agents, Platinum catalysts, NBR or Viton type elastomers at high temperature and long exposure times

10.6. Hazardous decomposition products

Hazardous decomposition products: Carbon dioxide (CO₂), Carbon monoxide (CO), Oxides of Cesium, Mixture of inorganic salts, Hydrocarbons

11. TOXICOLOGICAL INFORMATION

Information given is based on data on the components and the toxicology of similar products: Cesium Formate and Cesium Formate Brine.

11.1. Information on toxicological effects

Acute toxicity

Oral LD50: LD50/oral/rat > 300 mg/kg and < 2000 mg/kg. (OECD 401 and OECD 420).

Inhalation LC50: No data are available on the product itself

Dermal LD50: LD50/dermal/rat = >2000 mg/kg (OECD 402)

Skin corrosion/irritation: Skin irritation test, rabbit (OECD 404): Not irritating.

Serious eye damage/eye irritation: Primary eye irritation test in rabbit (OECD 405): Irritating to eyes.

Sensitization: Not sensitizing based on Local Lymph Node Assay (OECD 429).

Mutagenicity: Not mutagenic in Ames test. (OECD 471). Negative in chromosome aberration test in human lymphocytes. (OECD 473). Negative in mouse lymphoma assay. (OECD 476).

Carcinogenicity: Does not contain any substances listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference of Governmental Industrial Hygienists) or EU (European Union).

Reproductive Toxicity: Effects observed in ovaries and testes at 500 mg/kg/d in a 28-day oral repeated dose

study in rats. No effects were observed on reproductive organs at the two lower doses (150 and 15 mg/kg/d).

Based on a 90-day oral repeated dose toxicity study (OECD 408) on a similar substance (cesium chloride), this product is classified as Reproductive Toxicity Category 2 - suspected of damaging fertility. Male and female rats were used in the study. Effects on reproductive organs and reproductive cycles were seen only in males. The reproductive effects were generally secondary to other toxic effects on adrenals and kidneys. The No Observed Adverse Effect Level (NOAEL) for reproductive effects is equivalent to 10 mg Cs/kg bodyweight/day.

Developmental toxicity:

Based on the results of a Prenatal Developmental Toxicity Study (OECD 414) on a similar substance (cesium hydroxide), this product is not considered a developmental toxicant.

STOT - single exposure:

Effects on the central nervous system were observed in rats following a single oral exposure to 1250 mg/kg and higher.

STOT - repeated exposure:

In a 28-day oral study in rats, effects were observed in multiple organ systems at the high dose (500 mg/kg/d). Signs of neurotoxicity were also observed. Elevated reticulocyte count and effects on the heart, liver, spleen and serum biochemistry were observed at the middle dose (150 mg/kg/d). Elevated reticulocyte count was the only effect observed at the low dose (15 mg/kg/d). (OECD 407).

Based on a 90-day oral repeated dose toxicity study (OECD 408) on a similar substance (cesium chloride), this product is classified as STOT-RE Category 2 - may cause damage to multiple organs (kidneys and adrenals) through prolonged or repeated exposure. The No Observed Adverse Effect Level (NOAEL) for kidney and adrenal effects is equivalent to 10 mg Cs/kg bodyweight/day.

Aspiration Hazard:

Based on industrial experience and available data, no aspiration hazard is expected.

12. ECOLOGICAL INFORMATION

Information given is based on data on the components and the toxicology of similar products: Cesium Formate and Cesium Formate Brine.

12.1. Toxicity

Aquatic Toxicity:

MARINE

Pacific oyster (*Crassostrea gigas*) EC50 (24 hr) = 1200 mg/l

Marine copepod (*Acartia tonsa*) EC50 (48 hr) = 340 mg/l

Marine algae (*Skeletonema costatum*) EbC50 (72 hr) = 710 mg/l; ErC50 (0-72hr) = 1600 mg/l; NOEC = 320mg/l

Brown shrimp (*Crangon crangon*) LC50 (96 hr) = 875 mg/l

Juvenile turbot (*Scophthalmus maximus*) LC50 (96 hr) = 260 mg/l

Ctenogobius gymnauchen LC50 (96 hr) = 861.5 mg/l

Amphipod (*Corophium volutator*) LC50 (10 day) = 6653 mg/kg

Mysid shrimp (*Mysidopsis bahia*) LC50 (48 hr) = 521 mg/l

Mysid shrimp (*Mysidopsis bahia*) IC25 growth (7 day) = 260 mg/l, NOEC growth = 252 mg/l; IC25 survival (7 day) = 359 mg/l, NOEC survival = 420 mg/l

Inland Silverside (*Menidia beryllina*) LC50 (96 hr) = 787 mg/l

Inland Silverside (*Menidia beryllina*) IC25 growth (7 day) = 440 mg/l, NOEC growth = 252

mg/l; IC25 survival (7 day) = 471 mg/l, NOEC survival = 420 mg/l.

FRESHWATER

Zebra fish (*Brachydanio rerio*) LC50 (96 hr) >100 mg/l

Rainbow trout (*Oncorhynchus mykiss*) LC50 (96 hr) = 2100 mg/l

Water flea (*Daphnia magna*) EC50 (48 hr) > 100 mg/l

Freshwater algae (*Desmodesmus subspicatus*, formerly *Scenedesmus subspicatus*) ErC50 (0-72 hr) = 110 mg/l; NOEC = 56 mg/l

Freshwater algae (*Pseudokirchneriella subcapitata*, formerly *Selenastrum capricornutum*) ErC50 (0-72 hr) = 110 mg/l; NOEC = 18 mg/l.

Other Information:

In the majority of marine species, this material has not demonstrated toxicity and has received a rating of GOLD/SILVER/SILVER for drilling products and GOLD for Completion/Workover products under the PARCOM Harmonized Offshore and Chemical Notification Format (HOCNF)

12.2. Persistence and degradability

READILY BIODEGRADABLE

Ready Biodegradability in Sea Water - Closed Bottle Test (OECD Method 306) = 79% degradation after 28 days

Ready Biodegradability in Sea Water - Closed Bottle Test (OECD Method 306) = 66% degradation after 28 days

Ready Biodegradability in Freshwater - Closed Bottle Test (OECD Method 301D) = 83% degradation after 28 days

Ready Biodegradability in Freshwater - Closed Bottle Test (OECD Method 301D) = 79% degradation after 28 days

12.3. Bioaccumulative potential

No data are available on the product itself. See also Section 9.

Cesium Formate: Log Pow = < - 2,20 (no potential to bioconcentrate).

12.4. Mobility in soil

Mobility: No information available.

12.5. Results of PBT and vPvB assessment

Cesium formate is not considered to be a PBT or a vPvB substance.

12.6. Other adverse effects

No other data are available.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this SDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations. The person generating waste must determine its proper classification

13.1. Waste treatment methods

Waste from residues/unused

Product, as supplied, should be disposed of in accordance with the regulations issued by

products: the appropriate federal, state and local authorities. Same consideration should be given to containers and packaging.

Other Information: Waste codes should be assigned by the user based on the application for which the product was used. The unused material would be considered a hazardous waste under EU Directives.

14. TRANSPORT INFORMATION

DOT

14.1 UN/ID no	Not regulated
14.2 Proper Shipping Name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated

IMDG

14.1 UN/ID no	Not regulated
14.2 Proper Shipping Name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated

RID

14.1 UN/ID no	Not regulated
14.2 Proper Shipping Name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated

ADR

14.1 UN/ID no	Not regulated
14.2 Proper Shipping Name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated

ICAO (air)

14.1 UN/ID no	Not regulated
14.2 Proper Shipping Name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated

IATA

14.1 UN/ID no	Not regulated
14.2 Proper Shipping Name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated

IMO IBC Code:

Cesium Formate - Provisionally assessed as: Pollution Category Z, Ship Type 3, with additional requirement 15.19.6.
 Potassium Formate - Pollution Category Z, Pollution Hazard Only, Not Requiring a Chemical Tanker.
 Calcium Carbonate - Pollution Category Z, Pollution Hazard Only, Ship Type 3.

15. REGULATORY INFORMATION

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

Indication of danger: Product is a hazardous preparation/mixture according to EC-directive 1999/45/EC and its various amendments and adaptations and EC-Regulation 1272/2008 (CLP) and amendments.

Germany Water hazard class (WGK): Not determined

Swiss Poison class:

Potassium Formate -- (tested and found to be not toxic): G-7498

International Inventories

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory	Complies
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List	Complies
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances	Complies
ENCS - Japan Existing and New Chemical Substances	Does not comply
IECSC - China Inventory of Existing Chemical Substances	Does not comply
KECL - Korean Existing and Evaluated Chemical Substances	Does not comply
PICCS - Philippines Inventory of Chemicals and Chemical Substances	Does not comply
AICS - Australian Inventory of Chemical Substances	Complies
NZIoC - New Zealand Inventory of Chemicals	Does not comply
TCSI - Taiwan Chemical Substance Inventory	Complies

Note: Sinomine Specialty Fluids holds a low volume notification certificate from China and is allowed to import Cesium Formate substance up to 10 tonnes per year.

15.2. Chemical safety assessment

EU Chemical Safety Assessment: Per Article 14.1 of the REACH Regulation a Chemical Safety Assessment has been carried out: (Cesium Formate; Potassium Formate).

EU Exposure Scenarios: Exposure scenarios are available in the SDS appendix.

16. OTHER INFORMATION**Classification according to Directive 67/548/EEC or 1999/45/EC**

Xn; R48/22 Xi; R36

Xn - Harmful

Xi - Irritant

Full text of R-phrases referred to under sections 2 and 3

R36 - Irritating to eyes

R48/22 - Harmful: danger of serious damage to health by prolonged exposure if swallowed

References: MARPOL 73/78, Latest edition of Marine Environment Protection Committee (MEPC) Circulars MEPC.2/Circular, IBC Code, IMO Resolution A.673(16) Guidelines for the Transport and Handling of Limited Amounts of Hazardous and Noxious Liquid Substances in bulk on Offshore Support Vessels.

Contacts:

Manufacturing Site
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CANADA
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End of Safety Data Sheet