

**SCENTINEL® S-20 Gas Odorant**

Version 1.3

Revision Date 2016-05-24

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

Product Name : SCENTINEL® S-20 Gas Odorant  
Material : 1096889, 1098465, 1024714, 1024715, 1024716, 1024722,  
1024719, 1024718, 1024717, 1024713, 1024721, 1033064,  
1024720

**EC-No.Registration number**

| Chemical name     | CAS-No.<br>EC-No.<br>Index No. | Legal Entity<br>Registration number                                  |
|-------------------|--------------------------------|--|
| t-Butyl Mercaptan | 75-66-1<br>200-890-2           | Chevron Phillips Chemicals International NV<br>01-2119491288-26-0000 |

**Company** : Chevron Phillips Chemical Company LP  
Specialty Chemicals  
10001 Six Pines Drive  
The Woodlands, TX 77380

**Local** : Chevron Phillips Chemicals International N.V.  
Airport Plaza (Stockholm Building)  
Leonardo Da Vincilaan 19  
1831 Diegem  
Belgium

SDS Requests: (800) 852-5530  
Technical Information: (832) 813-4862  
Responsible Party: Product Safety Group  
Email:sds@cpchem.com

**Emergency telephone:**

**Health:**  
866.442.9628 (North America)  
1.832.813.4984 (International)

**Transport:**  
CHEMTREC 800.424.9300 or 703.527.3887(int'l)  
Asia: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316  
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

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South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group  
 E-mail address : SDS@CPChem.com  
 Website : www.CPChem.com

**SECTION 2: Hazards identification**
**Classification of the substance or mixture**  
**REGULATION (EC) No 1272/2008**

|                                      |   |
|--------------------------------------|---|
| Flammable liquids, Category 2        | H225:<br>Highly flammable liquid and vapor.               |
| Eye irritation, Category 2           | H319:<br>Causes serious eye irritation.                   |
| Skin sensitization, Category 1       | H317:<br>May cause an allergic skin reaction.             |
| Chronic aquatic toxicity, Category 2 | H411:<br>Toxic to aquatic life with long lasting effects. |

**Label elements****Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal Word : Danger

|                   |        |  |
|-------------------|--------|--|
| Hazard Statements | : H225 | Highly flammable liquid and vapor.               |
|                   | H317   | May cause an allergic skin reaction.             |
|                   | H319   | Causes serious eye irritation.                   |
|                   | H411   | Toxic to aquatic life with long lasting effects. |

|                          |                      |  |
|--------------------------|----------------------|--|
| Precautionary Statements | : <b>Prevention:</b> |  |
|                          | P210                 | Keep away from heat/sparks/open flames/hot surfaces. No smoking.                     |
|                          | P233                 | Keep container tightly closed.   |
|                          | P261                 | Avoid breathing dust/fume/gas/mist/vapors/spray.                                     |
|                          | P273                 | Avoid release to the environment.  |
|                          | <b>Response:</b>     |  |
|                          | P362 + P364          | Take off contaminated clothing and wash it before reuse.                             |
|                          | P370 + P378          | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |

Hazardous ingredients which must be listed on the label:

- 75-66-1 t-Butyl Mercaptan

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

Synonyms : Gas Odorant  
Mixture of t-butyl mercaptan and methy ethyl sulfide  
Mercaptan Mixture

Molecular formula : Mixture

**Mixtures****Hazardous ingredients**

| Chemical name            | CAS-No.<br>EC-No.<br>Index No.     | Classification<br>(REGULATION (EC) No<br>1272/2008)  | Concentration<br>[wt%] |
|--------------------------|------------------------------------|--|------------------------|
| <b>t-Butyl Mercaptan</b> | <b>75-66-1</b><br><b>200-890-2</b> | Flam. Liq. 2; H225<br>Aquatic Acute 2; H401<br>Skin Sens. 1; H317<br>Aquatic Chronic 2; H411 | 76 - 80                |
| Methyl Ethyl Sulfide     | 624-89-5<br>210-868-4              | Flam. Liq. 2; H225<br>Eye Irrit. 2; H319<br>Aquatic Chronic 3; H412                          | 20 - 24                |

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

**SECTION 4: First aid measures**

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

**SECTION 5: Firefighting measures**

Flash point : < -18 °C (< 0 °F)  
estimated

Autoignition temperature : No data available

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.

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- |  |   |  |
|--|---|--|
| Unsuitable extinguishing media                 | : | High volume water jet.   |
| Specific hazards during fire fighting          | : | Do not allow run-off from fire fighting to enter drains or water courses.  |
| Special protective equipment for fire-fighters | : | Wear self-contained breathing apparatus for firefighting if necessary.   |
| Further information                            | : | Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers. |
| Fire and explosion protection                  | : | Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.  |
| Hazardous decomposition products               | : | Carbon oxides. Sulfur oxides.  |

**SECTION 6: Accidental release measures**

- |                           |   |   |
|---------------------------|---|---|
| Personal precautions      | : | Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. |
| Environmental precautions | : | Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.   |
| Methods for cleaning up   | : | Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).       |

**SECTION 7: Handling and storage****Handling**

- |                         |   |   |
|-------------------------|---|---|
| Advice on safe handling | : | Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or |
|-------------------------|---|---|

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recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

**Storage**

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

**SECTION 8: Exposure controls/personal protection****Chevron Phillips Chemical Company LP**

| Ingredients       | Basis        | Value | Control parameters | Note |
|-------------------|--------------|-------|--------------------|------|
| t-Butyl Mercaptan | Manufacturer | TWA   | 0,5 ppm,           |      |

**Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

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- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****Appearance**

- Form : Liquid
- Physical state : Liquid
- Color : Clear
- Odor : Repulsive
- Odor Threshold : No data available

**Safety data**

- Flash point : < -18 °C (< 0 °F)  
estimated
- Lower explosion limit : Not applicable
- Upper explosion limit : Not applicable
- Oxidizing properties : no
- Autoignition temperature : No data available
- Thermal decomposition : No data available
- Molecular formula : Mixture
- Molecular weight : Not applicable
- pH : Not applicable
- Pour point : < -54 °C (< -65 °F)
- Boiling point/boiling range : 63 - 68 °C (145 - 154 °F)
- Vapor pressure : 5,70 PSI  
at 38 °C (100 °F)
- Relative density : 0,82  
at 16 °C (61 °F)
- Water solubility : slightly soluble
- Partition coefficient: n- : No data available

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octanol/water  
Viscosity, dynamic : 0,5 cP  
at 16 °C (60 °F)

Relative vapor density : 3  
(Air = 1.0)

Evaporation rate : 1

Percent volatile : > 99 %

**SECTION 10: Stability and reactivity**

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Possibility of hazardous reactions**

Conditions to avoid : Heat, flames and sparks.

Thermal decomposition : No data available

Hazardous decomposition products : Carbon oxides  
Sulfur oxides

Other data : No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information****Acute oral toxicity**

t-Butyl Mercaptan : LD50: 4.729 mg/kg  
Species: Rat  
Sex: male

Methyl Ethyl Sulfide : LD50: > 5.000 mg/kg  
Species: Rat  
Method: OECD Test Guideline 401

**Acute inhalation toxicity**

t-Butyl Mercaptan : LC50: 26643 ppm  
Exposure time: 4 h  
Species: Rat  
Sex: male and female  
Test atmosphere: vapor  
Method: OECD Test Guideline 403

LC50: 22200 ppm  
Exposure time: 4 h  
Species: Rat  
Sex: male

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Test atmosphere: vapor  
Method: OECD Test Guideline 403

LC50: 16500 ppm  
Exposure time: 4 h  
Species: Mouse  
Sex: male  
Test atmosphere: vapor  
Method: OECD Test Guideline 403

Methyl Ethyl Sulfide

LC50: > 21,7 mg/l  
Species: Rat  
Test atmosphere: vapor  
Method: OECD Test Guideline 403

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**Skin irritation** : May cause skin irritation and/or dermatitis.

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**Eye irritation** : May cause irreversible eye damage.

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**Sensitization** : Causes sensitization.

**Repeated dose toxicity**

t-Butyl Mercaptan

: Species: Rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 9, 97, 196 ppm  
Exposure time: 13 wks  
Number of exposures: 6 hrs/d, 5 d/wk  
NOEL: > 196 ppm

Species: Rat, Male and female  
Sex: Male and female  
Application Route: oral gavage  
Dose: 10, 50, 200 mg/kg bw/day  
Exposure time: 42-53 days  
Number of exposures: Daily  
NOEL: 50 mg/kg bw/day  
Lowest observable effect level: 200 mg/kg bw/day  
Method: OECD Guideline 422

Species: Rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 25.1, 99.6, 403.4 ppm  
Exposure time: 13 wks  
Number of exposures: 6 hrs/d, 5 d/wk  
NOEL: 99.6 ppm  
Lowest observable effect level: 403.4 ppm  
Method: OECD Guideline 413  
Target Organs: Liver, Kidney, Blood, Upper respiratory tract  
Information given is based on data obtained from similar substances.

**Reproductive toxicity**

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t-Butyl Mercaptan : Species: Rat  
 Sex: male and female  
 Application Route: oral gavage  
 Dose: 10, 50, 200 mg/kg bw/day  
 Number of exposures: Daily  
 Test period: 42 -53 days  
 Method: OECD Guideline 422  
 NOAEL Parent: 200 mg/kg bw/day  
 NOAEL F1: 50 mg/kg bw/day  
 No adverse effects expected

**Developmental Toxicity**

t-Butyl Mercaptan : Species: Mouse  
 Application Route: Inhalation  
 Dose: 11, 99, 195 ppm  
 Exposure time: GD 6-16  
 Number of exposures: 6 hrs/d  
 NOAEL Teratogenicity: > = 195 ppm  
 NOAEL Maternal: > = 195 ppm

Species: Rat  
 Application Route: Inhalation  
 Dose: 11, 99, 195 ppm  
 Exposure time: GD6-19  
 Number of exposures: 6 hrs/d  
 NOAEL Teratogenicity: > =195 ppm  
 NOAEL Maternal: > = 195 ppm

Species: Rat  
 Application Route: oral gavage  
 Dose: 10, 50, 200 mg/kg bw/day  
 Exposure time: 42-53 days  
 Number of exposures: Daily  
 NOAEL Teratogenicity: 50 mg/kg bw /day  
 NOAEL Maternal: 200 mg/kg bw /day

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**Aspiration toxicity** : May be harmful if swallowed and enters airways.

**CMR effects**

t-Butyl Mercaptan : Carcinogenicity: Not available  
 Mutagenicity: Did not show mutagenic effects in animal experiments.  
 Teratogenicity: Did not show teratogenic effects in animal experiments.  
 Reproductive toxicity: No toxicity to reproduction

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**Further information** : Solvents may degrease the skin.

**SECTION 12: Ecological information****Toxicity to fish**

t-Butyl Mercaptan : LC50: 34 mg/l

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Exposure time: 96 h  
 Species: *Oncorhynchus mykiss* (rainbow trout)  
 semi-static test Method: OECD Test Guideline 203

Methyl Ethyl Sulfide  
 LC50: > 49,8 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates**

t-Butyl Mercaptan : EC50: 6,7 mg/l  
 Exposure time: 48 h  
 Species: *Daphnia magna* (Water flea)  
 static test Method: OECD Test Guideline 202

Methyl Ethyl Sulfide  
 EC50: 16 mg/l  
 Exposure time: 48 h  
 Species: *Daphnia*  
 Method: OECD Test Guideline 202

**Toxicity to algae**

t-Butyl Mercaptan : EC50: 24 mg/l  
 Exposure time: 72 h  
 Species: *Pseudokirchneriella subcapitata* (green algae)  
 Method: OECD Test Guideline 201

Methyl Ethyl Sulfide  
 ErC50: > 500 mg/l  
 Exposure time: 72 h  
 Species: *Pseudokirchneriella subcapitata* (green algae)  
 Method: OECD Test Guideline 201

**Toxicity to bacteria**

Methyl Ethyl Sulfide : EC50: > 1.000 mg/l  
 Exposure time: 3 h  
 Species: Bacteria  
 Respiration inhibition  
 Method: OECD Test Guideline 209

Elimination information (persistence and degradability)

Bioaccumulation

t-Butyl Mercaptan : Bioconcentration factor (BCF): 12  
 Bioaccumulation is unlikely.

Methyl Ethyl Sulfide : Accumulation in aquatic organisms is unlikely.

Biodegradability : This material is not expected to be readily biodegradable.

**Ecotoxicology Assessment**

Acute aquatic toxicity

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|                                   |   |
|-----------------------------------|---|
| t-Butyl Mercaptan                 | : Toxic to aquatic life.  |
| Methyl Ethyl Sulfide              | : Harmful to aquatic life.  |
| Chronic aquatic toxicity          |   |
| t-Butyl Mercaptan                 | : Toxic to aquatic life with long lasting effects.  |
| Methyl Ethyl Sulfide              | : Harmful to aquatic life with long lasting effects.  |
| Results of PBT assessment         |   |
| t-Butyl Mercaptan                 | : Non-classified PBT substance, Non-classified vPvB substance   |
| Additional ecological information | : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects. |

**SECTION 13: Disposal considerations**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

|                        |  |
|------------------------|--|
| Product                | : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. |
| Contaminated packaging | : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.  |

**SECTION 14: Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, (< -18 °C), MARINE POLLUTANT, (TERTIARY BUTYL

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MERCAPTAN, TERTIARY BUTYL MERCAPTAN)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

**SECTION 15: Regulatory information****National legislation****Chemical Safety Assessment**

|                    |   |                         |   |           |
|--------------------|---|-------------------------|---|-----------|
| <b>Ingredients</b> | : | 2-methylpropane-2-thiol | A Chemical Safety Assessment has been carried out for this substance. | 200-890-2 |
|--------------------|---|-------------------------|---|-----------|

|  |   |   |
|--|---|---|
| <b>Major Accident Hazard Legislation</b> | : | 96/82/EC      Update: 2003<br>Highly flammable<br>7b<br>Quantity 1: 5.000 t<br>Quantity 2: 50.000 t |
|--|---|---|

|   |   |
|---|---|
| : | 96/82/EC      Update: 2003<br>Dangerous for the environment<br>9b<br>Quantity 1: 200 t<br>Quantity 2: 500 t |
|---|---|

|  |   |                                |
|--|---|--------------------------------|
| <b>Water contaminating class (Germany)</b> | : | WGK 3 highly water endangering |
|--|---|--------------------------------|

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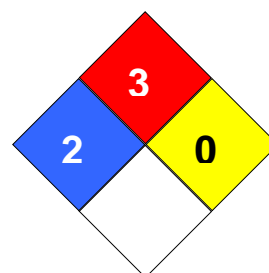
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**Notification status**

|                               |   |   |
|-------------------------------|---|---|
| Europe REACH                  | : | On the inventory, or in compliance with the inventory |
| United States of America TSCA | : | On the inventory, or in compliance with the inventory |
| Canada DSL                    | : | On the inventory, or in compliance with the inventory |
| Australia AICS                | : | On the inventory, or in compliance with the inventory |
| New Zealand NZIoC             | : | On the inventory, or in compliance with the inventory |
| Japan ENCS                    | : | On the inventory, or in compliance with the inventory |
| Korea KECI                    | : | On the inventory, or in compliance with the inventory |
| Philippines PICCS             | : | On the inventory, or in compliance with the inventory |
| China IECSC                   | : | On the inventory, or in compliance with the inventory |

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 2  
 Fire Hazard: 3  
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 34330

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

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

**Key or legend to abbreviations and acronyms used in the safety data sheet**

|       |   |       |   |
|-------|---|-------|---|
| ACGIH | American Conference of Government Industrial Hygienists | LD50  | Lethal Dose 50%                                     |
| AICS  | Australia, Inventory of Chemical Substances             | LOAEL | Lowest Observed Adverse Effect Level                |
| DSL   | Canada, Domestic Substances List                        | NFPA  | National Fire Protection Agency                     |
| NDSL  | Canada, Non-Domestic Substances List                    | NIOSH | National Institute for Occupational Safety & Health |
| CNS   | Central Nervous System                                  | NTP   | National Toxicology Program                         |
| CAS   | Chemical Abstract Service                               | NZIoC | New Zealand Inventory of Chemicals                  |
| EC50  | Effective Concentration                                 | NOAEL | No Observable Adverse Effect Level                  |
| EC50  | Effective Concentration 50%                             | NOEC  | No Observed Effect Concentration                    |
| EGEST | EOSCA Generic Exposure Scenario Tool                    | OSHA  | Occupational Safety & Health Administration         |
| EOSCA | European Oilfield Specialty                             | PEL   | Permissible Exposure Limit                          |

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|--------|--|-------|--|
|        | Chemicals Association                                    |       |  |
| EINECS | European Inventory of Existing Chemical Substances       | PICCS | Philippines Inventory of Commercial Chemical Substances                              |
| MAK    | Germany Maximum Concentration Values                     | PRNT  | Presumed Not Toxic   |
| GHS    | Globally Harmonized System                               | RCRA  | Resource Conservation Recovery Act   |
| >=     | Greater Than or Equal To                                 | STEL  | Short-term Exposure Limit  |
| IC50   | Inhibition Concentration 50%                             | SARA  | Superfund Amendments and Reauthorization Act.  |
| IARC   | International Agency for Research on Cancer              | TLV   | Threshold Limit Value  |
| IECSC  | Inventory of Existing Chemical Substances in China       | TWA   | Time Weighted Average  |
| ENCS   | Japan, Inventory of Existing and New Chemical Substances | TSCA  | Toxic Substance Control Act  |
| KECI   | Korea, Existing Chemical Inventory                       | UVCB  | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <=     | Less Than or Equal To                                    | WHMIS | Workplace Hazardous Materials Information System                                     |
| LC50   | Lethal Concentration 50%                                 |       |  |

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

|      |  |
|------|--|
| H225 | Highly flammable liquid and vapor.                 |
| H317 | May cause an allergic skin reaction.               |
| H319 | Causes serious eye irritation.                     |
| H401 | Toxic to aquatic life.                             |
| H411 | Toxic to aquatic life with long lasting effects.   |
| H412 | Harmful to aquatic life with long lasting effects. |