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

CERAN XM 220

Date of the previous version: 2019-06-17  Revision Date: 2019-09-09  Version 6.03

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name: CERAN XM 220
Number: 4KF
Substance/mixture: Mixture

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

Identified uses: Lubricating grease.

1.3. Details of the supplier of the safety data sheet

Supplier: TOTAL LUBRIFIANTS
562 Avenue du Parc de L'île
92029 Nanterre Cedex
FRANCE
Tél: +33 (0)1 41 35 40 00
Fax: +33 (0)1 41 35 84 71***

For further information, please contact:

Contact Point: HSE***
E-mail Address: rm.msds-lubs@total.com***

1.4. Emergency telephone number

Emergency telephone: +44 1235 239670
France - ORFILA (INRS) Tél : +33 (0)1 45 42 59 59
In France - Poison centers:
ANGERS : 02 41 48 21 21
BORDEAUX : 05 56 96 40 80
LILLE : 08 00 59 59 59
LYON : 04 72 11 69 11
MARSEILLE : 04 91 75 25 25
NANCY : 03 83 22 50 50
PARIS : 01 40 05 48 48
STRASBOURG : 03 88 37 37 37
TOULOUSE : 05 61 77 74 47

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Date of the previous version: 2019-06-17  Revision Date: 2019-09-09  Version 6.03
Classification:
The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.
Serious eye damage/eye irritation - Category 2 - (H319)

2.2. Label elements

Labelled according to REGULATION (EC) No 1272/2008

Hazard pictograms

Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

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

Supplemental Hazard Statements
EUH208 - Contains Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts, Sulfonic acids, petroleum, calcium salt, C14-16-18 Alkyl phenol, Benzenesulfonic acid, mono-C16-24-alkyl derivs., calcium salts. May produce an allergic reaction

2.3. Other hazards

Physical-Chemical Properties
Contaminated surfaces will be extremely slippery.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixture

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC-No</th>
<th>REACH registration No</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Classification (Reg. 1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral oil of petroleum origin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CERAN XM 220

Revision Date: 2019-09-09

Section 4: FIRST AID MEASURES

4.1. Description of first-aid measures

General advice
IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.***

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing.***

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. High pressure jets may cause skin damage. Take victim immediately to hospital.***

Inhalation
Remove casualty to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration.***

Ingestion
Clean mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.***

Protection of First-aiders
First aider needs to protect himself. See Section 8 for more detail. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.***

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

Eye contact
Causes serious eye irritation.***

Skin contact
Not classified based on available data. May produce an allergic reaction. High pressure injection of the products under the skin may have very serious consequences even though no symptom or injury may be apparent.***

Inhalation
Not classified based on available data.***

Ingestion
Not classified based on available data. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.***
4.3. **Indication of any immediate medical attention and special treatment needed**

Notes to physician: Treat symptomatically.***

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### Section 5: FIRE-FIGHTING MEASURES

#### 5.1. Extinguishing media

**Suitable Extinguishing Media**
Carbon dioxide (CO$_2$). ABC powder. Foam. Water spray or fog.***

**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

**Special Hazard**
Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration. Combustion products include sulphur oxides (SO$_2$ and SO$_3$) and Hydrogen sulphide H$_2$S. Nitrogen oxides (NO$_x$). Mercaptans. Silicon dioxide.***

#### 5.3. Advice for fire-fighters

**Special protective equipment for fire-fighters**
Wear self-contained breathing apparatus and protective suit.

**Other information**
Cool containers / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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### Section 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal precautions, protective equipment and emergency procedures

**General Information**
Do not touch or walk through spilled material. Contaminated surfaces will be extremely slippery. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.***

#### 6.2. Environmental precautions

**General Information**
Do not allow material to contaminate ground water system. Prevent entry into waterways, sewers, basements or confined areas.***

#### 6.3. Methods and material for containment and cleaning up

**Methods for containment**
If necessary dike the product with dry earth, sand or similar non-combustible materials.***

**Methods for cleaning up**
Dispose of contents/container in accordance with local regulation. In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.***

#### 6.4. Reference to other sections
Personal Protective Equipment: See Section 8 for more detail.


Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling: For personal protection see section 8. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing.***

Prevention of fire and explosion: Take precautionary measures against static discharges.***

Hygiene measures: Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Provide regular cleaning of equipment, work area and clothing. Do not use abrasives, solvents or fuels. Do not dry hands with rags that have been contaminated with product. Do not put product contaminated rags into workwear pockets.***

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions: Keep away from food, drink and animal feedingstuffs. Keep in a bunded area. Keep container tightly closed. Keep preferably in the original container. Otherwise reproduce all indication of the regulation label on the new container. Do not remove the hazard labels of the containers (even if they are empty). Design the installations in order to avoid accidental emissions of product (due to seal breakage, for example) onto hot casings or electrical contacts. Store at room temperature. Protect from moisture.***

Materials to Avoid: Strong oxidizing agents.***

7.3. Specific end uses

Specific use(s): Please refer to Technical Data Sheet for further information.***

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits: Mineral oil mist:
USA: OSHA (PEL) TWA 5 mg/m\(^3\), NIOSH (REL) TWA 5 mg/m\(^3\), STEL 10 mg/m\(^3\), ACGIH (TLV) TWA 5 mg/m\(^3\) (highly refined)

Legend: See section 16

Derived No Effect Level (DNEL) ***

DNEL Worker (Industrial/Professional) ***
<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Short term, systemic effects</th>
<th>Short term, local effects</th>
<th>Long term, systemic effects</th>
<th>Long term, local effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts*** 68584-23-6</td>
<td></td>
<td></td>
<td>1.667 mg/kg bw/day (dermal)</td>
<td>0.33 mg/m³ (inhalation) 0.8333 mg/kg bw/day (oral)</td>
</tr>
<tr>
<td>Benzenesulfonic acid, mono-C16-24-alkyl derivs., calcium salts*** 70024-69-0</td>
<td></td>
<td></td>
<td>0.33 mg/m³ Inhalation 1.667 mg/kg bw/day Dermal</td>
<td>0.8333 mg/kg bw/day Oral</td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., Ca Salt*** ^</td>
<td></td>
<td>85 mg/kg bw/day (Dermal)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Predicted No Effect Concentration (PNEC)**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Water</th>
<th>Sediment</th>
<th>Soil</th>
<th>Air</th>
<th>STP</th>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts*** 68584-23-6</td>
<td>1 mg/l fw 1 mg/l mw 10 mg/l or</td>
<td>723500000 mg/kg dw fw 723500000 mg/kg dw mw</td>
<td>868700000 mg/kg dw</td>
<td>100 mg/l</td>
<td>16.667 mg/kg food</td>
<td></td>
</tr>
<tr>
<td>Sulfonic acids, petroleum, calcium salt*** 61789-86-4</td>
<td>1 mg/l fw 1 mg/l mw 10 mg/l or</td>
<td>226000000 mg/kg sediment dw fw 226000000 mg/kg sediment dw mw</td>
<td>271000000 mg/kg soil dw</td>
<td>1000 mg/l</td>
<td>16.667 mg/kg food</td>
<td></td>
</tr>
<tr>
<td>Benzenesulfonic acid, mono-C16-24-alkyl derivs., calcium salts*** 70024-69-0</td>
<td>1 mg/l fw 1 mg/l mw 10 mg/l or</td>
<td>723500000 mg/kg dw fw 723500000 mg/kg dw mw</td>
<td>868700000 mg/kg dw</td>
<td>100 mg/l</td>
<td>16.667 mg/kg food</td>
<td></td>
</tr>
</tbody>
</table>
8.2. Exposure controls

Occupational Exposure Controls

Engineering Measures

Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.***

Personal Protective Equipment

General Information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered. The personal protective equipment (PPE) recommendations apply to the product ITSELF. In case of mixtures or formulations, it is suggested that you contact the relevant PPE suppliers.***

Respiratory protection

None under normal use conditions. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Respirator with combination filter for vapour/particulate (EN 14387). Type A/P1. Warning ! filters have a limited use duration. The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.***

Eye Protection

Safety glasses with side-shields. EN 166.***

Skin and body protection

Wear suitable protective clothing. Protective shoes or boots. Long sleeved clothing. Type 4/6.***

Hand Protection

Hydrocarbon-proof gloves. Fluorinated rubber. Nitrile rubber. In case of prolonged contact with the product, it is recommended to wear gloves complying with EN 420 and EN 374 standards, protecting at least for 480 minutes and having a thickness of 0,38 mm at least. These values are indicative only. The level of protection is provided by the material of the glove, its technical characteristics, its resistance to the chemicals to be handled, the appropriateness of its use and its replacement frequency. 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.***

Environmental exposure controls

General Information

The product should not be allowed to enter drains, water courses or the soil.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Color

light brown
CERAN XM 220

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

General Information

None under normal processing.***

10.2. Chemical stability

Stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous Reactions

No dangerous reaction known under conditions of normal use.***

10.4. Conditions to avoid
Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Keep away from heat and sparks.***

10.5. Incompatible materials

Materials to Avoid

Strong oxidizing agents.***

10.6. Hazardous Decomposition Products

Hazardous Decomposition Products

Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. Combustion products include sulphur oxides (SO2 and SO3) and Hydrogen sulphide H2S. Mercaptans. Nitrogen oxides (NOx). Silicon dioxide.***

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity  Local effects  Product Information

Skin contact

Not classified based on available data. May produce an allergic reaction. High pressure injection of the products under the skin may have very serious consequences even though no symptom or injury may be apparent.***

Eye contact

Causes serious eye irritation.***

Inhalation

Not classified based on available data.***

Ingestion

Not classified based on available data. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.***

ATEmix (inhalation-dust/mist)

65.80*** mg/l***

Acute toxicity - Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts***</td>
<td>5500 mg/kg (rat - OECD 401)</td>
<td>&gt; 5000 mg/kg bw (rabbit - OECD 402)</td>
<td>&gt; 1.9 mg/l (rat - aerosol OECD 403)</td>
</tr>
<tr>
<td>Sulfonic acids, petroleum, calcium salt***</td>
<td>16000 mg/kg bw (rat)</td>
<td>&gt; 4000 mg/kg (rabbit)</td>
<td>LC50(4h) &gt; 1.9 mg/l (rat - aerosol)</td>
</tr>
<tr>
<td>Benzenesulfonic acid, mono-C16-24-alkyl derivs., calcium salts***</td>
<td>LD50 &gt; 5000 mg/kg (rat - OECD 401)</td>
<td>LD50 &gt; 5000 mg/kg (rabbit - OECD 402)</td>
<td></td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., Ca Salt***</td>
<td>LD50 4445 mg/kg bw (rat)</td>
<td>LD50 2000 mg/kg bw (rat)</td>
<td></td>
</tr>
<tr>
<td>C14-16-18 Alkyl phenol***</td>
<td>LD50 2000 mg/kg bw (rat)</td>
<td>LD50 2000 mg/kg bw (rat)</td>
<td></td>
</tr>
</tbody>
</table>

Sensitization

Sensitization

Not classified based on available data. The supplier of one or more of the components contained within this formulation has indicated that he has data on the components and/or similar mixtures, which confirms that at the concentration used, classification is not required. Contains sensitizer(s). May produce an allergic reaction.***

Specific effects
CERAN XM 220

Carcinogenicity
Not classified based on available data.***

Mutagenicity
***

Germ Cell Mutagenicity
Not classified based on available data.***

Reproductive toxicity
Not classified based on available data.***

Repeated dose toxicity

Target Organ Effects (STOT)
Specific target organ systemic toxicity (single exposure)
Not classified based on available data.***

Specific target organ systemic toxicity (repeated exposure)
Not classified based on available data.***

Aspiration toxicity
Not classified based on available data.***

Other information

Other adverse effects
Characteristic skin lesions (pimples) may develop following prolonged and repeated exposures (contact with contaminated clothing).***

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Not classified based on available data.***

Acute aquatic toxicity - Product Information***
No information available.***

Acute aquatic toxicity - Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts*** 68584-23-6</td>
<td>EL50(72h) &gt; 1000 mg/l (Pseudokirchneriella subcapitata)</td>
<td>EL50(48h) &gt; 1000 mg/l (Daphnia magna)</td>
<td>LL50(96h) &gt; 10000 mg/l (Cyprinodon variegatus - OECD 203)</td>
<td></td>
</tr>
<tr>
<td>Sulfonic acids, petroleum, calcium salt*** 61789-86-4</td>
<td>EC50(72h) &gt; 1000 mg/l (Pseudokirchneriella subcapitata)</td>
<td>EC50(48h) &gt; 1000 mg/l (Daphnia magna - OECD 202)</td>
<td>LC50(96h) &gt; 10000 mg/l (Cyprinodon variegatus - OECD 203)</td>
<td></td>
</tr>
<tr>
<td>Benzenesulfonic acid, mono-C16-24-alkyl derivs., calcium salts*** 70024-69-0</td>
<td>EC50 (72h) &gt; 1000 mg/l (Pseudokirchneriella subcapitata - static)</td>
<td>EC50 (48h) &gt; 1000 mg/l (Daphnia magna - static)</td>
<td>LL50 (96h) &gt; 10000 mg/l (Cyprinodon variegatus - OECD 203)</td>
<td></td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., Ca Salt*** ^</td>
<td>EC50 (96h) 29 mg/l (Pseudokirchneriella subcapitata)</td>
<td>EC50 (48 h) 2.9 mg/l EC50 (24 h) 3.58 mg/l (Daphnia magna - OECD 202)</td>
<td>LC50 (96h) &gt;1 - &lt;10 mg/l (OECD 203)</td>
<td></td>
</tr>
<tr>
<td>C14-16-18 Alkyl phenol*** ^</td>
<td>EC50(48h) &gt; 100 mg/l (Daphnia magna - static -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chronic aquatic toxicity - Product Information
No information available.***

Chronic aquatic toxicity - Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., Ca Salt***</td>
<td>NOEC (96h) 500 µg/l, LOEC (96h) 1 mg/l</td>
<td>NOEC (48h) 379 µg/l, LOEC (48h) 5.6 mg/l (Daphnia magna) NOEC (21d) 1.18 mg/l</td>
<td>NOEC (72h) 0.23 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

Effects on terrestrial organisms
No information available.***

12.2. Persistence and degradability

General Information
No information available.

12.3. Bioaccumulative potential

Product Information
No information available.***

logPow
No information available.***

Component Information
Does not contain hazardous substances above regulatory disclosure thresholds.***

12.4. Mobility in soil

Soil
Given its physical and chemical characteristics, the product has no soil mobility.***

Air
Loss by evaporation is limited.***

Water
The product is insoluble and floats on water.***

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment
No information available.***

12.6. Other adverse effects

General Information
No information available.***

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products
Should not be released into the environment. Do not empty into drains. Dispose of in accordance with the European Directives on waste and hazardous waste.***
Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal.***

EWC Waste Disposal No.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: 12 01 12.***

Other information
Refer to section 8 for safety and protective measures for disposal personnel.***

**Section 14: TRANSPORT INFORMATION**

**ADR/RID**
Not regulated

**IMDG/IMO**
Not regulated

**ICAO/IATA**
Not regulated

**ADN**
Not regulated

**Section 15: REGULATORY INFORMATION**

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

**European Union**

**REACH**
All substances contained in this mixture have been pre-registered, registered or are exempt from registration in accordance with Regulation (CE) No. 1907/2006 (REACH)***

**International Inventories**
All the substances contained in this product are listed or exempted from listing in the following inventories:
- U.S.A. (TSCA)
- China (IECSC)
- Europe (EINECS/ELINCS/NLP)
- Japan (ENCS)
- Canada (DSL/NDSL)
- Australia (AICS)
- Korea (KECL)***

**Further information**
No information available***
15.2. Chemical Safety Assessment

Chemical Safety Assessment  No information available***

Section 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H373 - May cause damage to organs through prolonged or repeated exposure
H412 - Harmful to aquatic life with long lasting effects***

Abbreviations, acronyms
ACGIH = American Conference of Governmental Industrial Hygienists
bw = body weight
bw/day = body weight/day
EC x = Effect Concentration associated with x% response
GLP = Good Laboratory Practice
IARC = International Agency for Research of Cancer
LC50 = 50% Lethal concentration - Concentration of a chemical in air or a chemical in water which causes the death of 50% (one half) of a group of test animals
LD50 = 50% Lethal Dose - Chemical amount, given at once, which causes the death of 50% (one half) of a group of test animals
LL = Lethal Loading
NIOSH = National Institute of Occupational Safety and Health
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
NOEL = No Observed Effect Level
OECD = Organization for Economic Co-operation and Development
OSHA = Occupational Safety and Health Administration
UVCB = Substance of unknown or Variable composition, Complex reaction products or Biological material
ATE = Acute Toxicity Estimate
QSAR = Quantitative Structure-Activity Relationship
EL50 = median Effective Loading
NOELR = No Observed Effect Loading Rate
PAH = Polycyclic aromatic hydrocarbons
LOEC = Lowest Observed Effect Concentration
PVA = Polyvinyl alcohol
PVC = Polyvinyl chloride
ECOSAR = Ecological Structure Activity Relationships
CNS = Central nervous system
EPA = Environmental Protection Agency
ErL50 = effective loading on growth rate in algae test, to cause a 50% response
EblL50 = effective loading on growth with the control in algae test, to cause a 50% response
DNEL = Derived No Effect Level
PNEC = Predicted No Effect Concentration
dw = dry weight
fw = fresh water
mw = marine water
or = occasional release

Legend  Section 8
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.

End of the Safety Data Sheet
1. Exposure scenario

Formulation additives, lubricants and greases, Industrial.

Use Descriptor
Sector of use
SU10 - Formulation
SU3 - Industrial Manufacturing (all)

Process category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15 - Use as laboratory reagent

Environmental Release Category
ERC2 - Formulation of preparations

Specific Environmental Release Category

Processes, tasks, activities covered
Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

No exposure scenario required

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
Liquid, vapor pressure < 0.5 kPa at STP

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Amounts used
Not applicable.

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Human factors not influenced by risk management
not applicable

Other operational conditions affecting exposure
Covers percentage substance in the product up to 100 % (unless stated differently).
### 2.2a. Control of worker exposure

<table>
<thead>
<tr>
<th>Contributing Scenarios</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>General measures applicable to all activities</td>
<td>Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.</td>
</tr>
<tr>
<td>General exposures. Use in contained systems elevated temperature - PROC 2</td>
<td>No other specific measures identified.</td>
</tr>
<tr>
<td>Mixing operations (closed systems). Batch processes at elevated temperatures - PROC 3</td>
<td>Provide extract ventilation to points where emissions occur.</td>
</tr>
<tr>
<td>Mixing operations (open systems). Batch processes at elevated temperatures - PROC 4; 5</td>
<td>Provide extract ventilation to points where emissions occur. Avoid carrying out activities involving exposure for more than 4 hours.</td>
</tr>
<tr>
<td>Mixing operations (open systems) - PROC 4; 5</td>
<td>Provide extract ventilation to points where emissions occur.</td>
</tr>
<tr>
<td>Process sampling - PROC 4; 8b</td>
<td>Avoid carrying out activities involving exposure for more than 1 hour. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.</td>
</tr>
<tr>
<td>Bulk transfers; dedicated facility - PROC 8b</td>
<td>Avoid carrying out activities involving exposure for more than 4 hours. Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.</td>
</tr>
<tr>
<td>Drum/batch transfers; dedicated facility - PROC 8b</td>
<td>Provide extract ventilation to points where emissions occur.</td>
</tr>
<tr>
<td>Drum/batch transfers; non-dedicated facility - PROC 8a</td>
<td>Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour. Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.</td>
</tr>
<tr>
<td>Equipment cleaning and maintenance - PROC 8a; 8b</td>
<td>Drain down and flush system prior to equipment break-in or maintenance. Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately.</td>
</tr>
<tr>
<td>Drum and small package filling - PROC 9</td>
<td>Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours.</td>
</tr>
<tr>
<td>Laboratory activities - PROC 15</td>
<td>Avoid carrying out activities involving exposure for more than 4 hours.</td>
</tr>
<tr>
<td>Storage - PROC 1; 2</td>
<td>Store substance within a closed system.</td>
</tr>
</tbody>
</table>

### 2.2b. Control of consumer exposure

<table>
<thead>
<tr>
<th>Product Category(ies)</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### 3. Exposure estimation and references

**Health**
The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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 (http://cefic.org/en/reach-for-industries-libraries.html). If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

General
For further information see www.atiel.org/reach/introduction
1. Exposure scenario

General use of lubricants and greases in vehicles or machinery. Industrial.

Use Descriptor
Sector of use
SU3 - Industrial Manufacturing (all)

Process category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Environmental Release Category
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
ERC7 - Industrial use of substances in closed systems

Specific Environmental Release Category

Processes, tasks, activities covered
Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

No exposure scenario required

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Vapor Pressure
<0.5 kPa

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
3. Exposure estimation and references

Health
The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

Environment
Used ECETOC TRA model.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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 (http://cefic.org/en/reach-for-industries-libraries.html). If scaling reveals a condition of unsafe use (i.e., RCRs >
1), additional RMMs or a site-specific chemical safety assessment is required.

**General**

For further information see [www.atiel.org/reach/introduction](http://www.atiel.org/reach/introduction)
1. Exposure scenario

General use of lubricants and greases in vehicles or machinery. Professional.

Use Descriptor
Sector of use
SU22 - Professional uses

Process category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems

Environmental Release Category
ERC9a - Wide dispersive indoor use of substances in closed systems
ERC9b - Wide dispersive outdoor use of substances in closed systems

Specific Environmental Release Category

Processes, tasks, activities covered
Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

No exposure scenario required

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Vapor Pressure
<0.5 kPa

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
2.2a. Control of worker exposure

<table>
<thead>
<tr>
<th>Contributing Scenarios</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>General measures applicable to all activities</td>
<td>Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/ minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.</td>
</tr>
<tr>
<td>Operation of equipment containing engine oils and similar; Use in contained systems - PROC 1</td>
<td>No other specific measures identified.</td>
</tr>
<tr>
<td>Material transfers; non-dedicated facility - PROC 8a</td>
<td>Avoid carrying out activities involving exposure for more than 4 hours. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.</td>
</tr>
<tr>
<td>Equipment cleaning and maintenance; dedicated facility - PROC 8b; 20</td>
<td>Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.</td>
</tr>
<tr>
<td>Storage - PROC 1; 2</td>
<td>Store substance within a closed system.</td>
</tr>
</tbody>
</table>

2.2b. Control of consumer exposure

<table>
<thead>
<tr>
<th>Product Category(ies)</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

3. Exposure estimation and references

Health
The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product

Environment
Used ECETOC TRA model.

4. Guidance for Downstream User to check compliance with the Exposure scenario

Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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 (http://cefic.org/en/reach-for-industries-libraries.html). If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

General
For further information see www.atiel.org/reach/introduction
1. Exposure scenario

Use of lubricants and greases in open systems. Industrial.

Use Descriptor
Sector of use
SU3 - Industrial Manufacturing (all)

Process category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC7 - Industrial spraying
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 - Roller application or brushing
PROC13 - Treatment of articles by dipping and pouring

Environmental Release Category
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Specific Environmental Release Category

Processes, tasks, activities covered
Covers use of lubricants and greases in open systems, including application of lubricant to work pieces or equipment by dipping, brushing or spraying (without exposure to heat), e.g. mold releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

No exposure scenario required

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
liquid

Vapor Pressure
<0.5 kPa

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
### 3. Exposure estimation and references

**Health**
The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Environment**
Used ECETOC TRA model.

### 4. Guidance for Downstream User to check compliance with the Exposure scenario

**Health**
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

**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 (http://cefic.org/en/reach-for-industries-libraries.html).

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

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#### 2.2a. Control of worker exposure

<table>
<thead>
<tr>
<th>Contributing Scenarios</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>General measures applicable to all activities</td>
<td>Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.</td>
</tr>
<tr>
<td>Material transfers - PROC 8b</td>
<td>Avoid carrying out activities involving exposure for more than 1 hour.</td>
</tr>
<tr>
<td>Material transfers; Automated process with (semi) closed systems - PROC 8b; 9</td>
<td>Ensure material transfers are under containment or extract ventilation.</td>
</tr>
<tr>
<td>Roller, spreader, flow application - PROC 10</td>
<td>Provide extract ventilation to points where emissions occur.</td>
</tr>
<tr>
<td>Spraying - PROC 7</td>
<td>Carry out in a vented booth or extracted enclosure. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.</td>
</tr>
<tr>
<td>Treatment of articles by dipping and pouring - PROC 13</td>
<td>Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.</td>
</tr>
<tr>
<td>Equipment cleaning and maintenance - PROC 8b</td>
<td>Drain down system prior to equipment break-in or maintenance. Provide a good standard of general or controlled ventilation (not less than 3 to 5 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Retain drain downs in sealed storage pending disposal or for subsequent recycle.</td>
</tr>
<tr>
<td>Storage - PROC 1; 2</td>
<td>Store substance within a closed system.</td>
</tr>
</tbody>
</table>

#### 2.2b. Control of consumer exposure

<table>
<thead>
<tr>
<th>Product Category(ies)</th>
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</thead>
<tbody>
<tr>
<td>Remarks</td>
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</tr>
</tbody>
</table>

---

**Contributing Scenarios**
Operational conditions and risk management measures

---

**Operational conditions and risk management measures**

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**Remarks**
Not applicable.
required.

**General**

For further information see www.atiel.org/reach/introduction
1. Exposure scenario

Use of lubricants and greases in open systems. Professional.

Use Descriptor
Sector of use
SU22 - Professional uses

Process category
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC10 - Roller application or brushing
PROC11 - Non industrial spraying
PROC13 - Treatment of articles by dipping and pouring

Environmental Release Category
ERC8a - Wide dispersive indoor use of processing aids in open systems
ERC8d - Wide dispersive outdoor use of processing aids in open systems

Specific Environmental Release Category

Processes, tasks, activities covered
Covers use of lubricants and greases in open systems, including application of lubricant to work pieces or equipment by dipping, brushing or spraying (without exposure to heat), e.g. mold releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities.

2. Operational conditions and risk management measures

2.1. Control of environmental exposure

No exposure scenario required

2.2. Control of exposure - Workers / Consumers

Product characteristics
Physical State
Liquid, vapor pressure < 0.5 kPa at STP

Concentration of substance in product
Covers percentage substance in the product up to 100 % (unless stated differently).

Frequency and duration of use
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting exposure
Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.
### 2.2a. Control of worker exposure

<table>
<thead>
<tr>
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<td>General measures applicable to all activities</td>
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</tr>
<tr>
<td>Material transfers; Manual - PROC 8a</td>
<td>Avoid carrying out activities involving exposure for more than 1 hour.</td>
</tr>
<tr>
<td>Roller, spreader, flow application - PROC 10</td>
<td>Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.</td>
</tr>
<tr>
<td>Spraying - PROC 11</td>
<td>Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 1 hour. Wear a respirator conforming to EN140 with Type A/P2 filter or better. Wear suitable coveralls to prevent exposure to the skin. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.</td>
</tr>
<tr>
<td>Treatment of articles by dipping and pouring - PROC 13</td>
<td>Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.</td>
</tr>
<tr>
<td>Equipment cleaning and maintenance - PROC 8a</td>
<td>Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 4 hours. Retain drain downs in sealed storage pending disposal or for subsequent recycle.</td>
</tr>
<tr>
<td>Storage - PROC 1; 2</td>
<td>Store substance within a closed system.</td>
</tr>
</tbody>
</table>

### 2.2b. Control of consumer exposure

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

### 3. Exposure estimation and references

**Health**

The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Environment**

Used ECETOC TRA model.

### 4. Guidance for Downstream User to check compliance with the Exposure scenario

**Health**

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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 (http://cefic.org/en/reach-for-industries-libraries.html).
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

General For further information see www.atiel.org/reach/introduction