# SAFETY DATA SHEET.
According to EC No 1907/2006 as amended as at the date of this SDS

# Shell Gadus S3 V460 2

| Version | Revision Date.: | SDS Number: | Date of last issue: 10.09.2024 |
|---|---|---|---|
| 7.1 | 12.11.2026 | 800001006666 | Print Date. 13.11.2026 |

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

### 1.1 Product identifier

| | | |
|---|---|---|
| Trade name | : | Shell Gadus S3 V460 2 |
| Product code | : | 001D8428 |
| Unique Formula Identifier | | M6H4-U0TS-1000-826W |

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

| | | |
|---|---|---|
| Use of the Substance/Mixture | : | Automotive and industrial grease. |
| Uses advised against | : | This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier. |

### 1.3 Details of the supplier of the safety data sheet

| | | |
|---|---|---|
| Manufacturer/Supplier | : | **Shell UK Oil Products Limited**<br>Shell Centre<br>London<br>SE1 7NA<br>United Kingdom |
| Telephone | : | (+44) 08007318888 |
| Telefax | : | |
| Contact for Safety Data Sheet | : | If you have any enquiries about the content of this SDS please email lubricantSDS@shell.com |

### 1.4 Emergency telephone number

: +44 (0) 20 7934 7778 (This telephone number is available 24 hours per day, 7 days per week)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

| | |
|---|---|
| Eye irritation, Category 2 | H319: Causes serious eye irritation. |
| Long-term (chronic) aquatic hazard, Category 3 | H412: Harmful to aquatic life with long lasting effects. |

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal word : Warning

Hazard statements :

PHYSICAL HAZARDS:
Not classified as a physical hazard according to CLP criteria.

HEALTH HAZARDS:
H319 Causes serious eye irritation.

ENVIRONMENTAL HAZARDS:
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

**Prevention:**

P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

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

**Storage:**

No precautionary phrases.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

Sensitising components : Contains Fatty acids, C18 unsaturated, reaction products with diethylenetriamine.
May produce an allergic reaction.

### 2.3 Other hazards

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

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

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

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Used grease may contain harmful impurities.
High-pressure injection under the skin may cause serious damage including local necrosis.
Not classified as flammable but will burn.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : A lubricating grease containing highly-refined mineral oils and additives.
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.
Classification based on DMSO extract content < 3%.

**Components**

| Chemical name | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number | Classification | Concentration (% w/w) |
|---|---|---|---|
| Reaction products of boric acid and lithium hydroxide | Not Assigned<br>701-475-3<br>01-2120772309-47 | Acute Tox. 4; H302<br>Eye Dam. 1; H318<br>Repr. 2; H361d<br><br>specific concentration limit<br>Repr. 2; H361d<br>7.8 % | 1 - 2.9 |
| Zinc dialkyldithiophosphate | 101747-77-7<br>Not Assigned | Skin Irrit. 2; H315<br>Eye Dam. 1; H318<br>Aquatic Chronic 2; H411 | 1 - 1.9 |
| Alkaryl amine | 68411-46-1<br>270-128-1<br>01-2119491299-23 | Repr. 2; H361f | 0.1 - 0.9 |
| Fatty acids, C18 unsat, reaction products with diethylenetriamine | 1226892-43-8<br>629-715-1 | Skin Corr. 1C; H314<br>Eye Dam. 1; H318<br>Skin Sens. 1; H317<br>Aquatic Acute 1; H400<br>Aquatic Chronic 1; H410 | 0.25 - 0.9 |

| | | | |
|---|---|---|---|
| | | M-Factor (Acute aquatic toxicity): 10<br>M-Factor (Chronic aquatic toxicity): 1 | |

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : Not expected to be a health hazard when used under normal conditions.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled : No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
Obtain medical attention even in the absence of apparent wounds.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Transport to the nearest medical facility for additional treatment.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

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

Symptoms : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas.

Ingestion may result in nausea, vomiting and/or diarrhea.
Not considered to be an inhalation hazard under normal conditions of use.
Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.
No specific hazards under normal use conditions.
Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Call a doctor or poison control center for guidance.
Treat symptomatically.
Notes to doctor/physician:
Treat symptomatically.
Call a doctor or poison control center for guidance.
High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function.
Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Hazardous combustion products may include:
A complex mixture of airborne solid and liquid particulates and gases (smoke).

Carbon monoxide may be evolved if incomplete combustion occurs.
Unidentified organic and inorganic compounds.

**5.3 Advice for firefighters**

| | | |
|---|---|---|
| Special protective equipment for firefighters | : | Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469). |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |

## SECTION 6: Accidental release measures

**6.1 Personal precautions, protective equipment and emergency procedures**

| | | |
|---|---|---|
| Personal precautions | : | 6.1.1 For non emergency personnel:<br>Avoid contact with skin and eyes. |

**6.2 Environmental precautions**

| | | |
|---|---|---|
| Environmental precautions | : | Use appropriate containment to prevent uncontrolled release.<br>Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. |

**6.3 Methods and material for containment and cleaning up**

| | | |
|---|---|---|
| Methods for cleaning up | : | Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations. |

**6.4 Reference to other sections**

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

## SECTION 7: Handling and storage

**7.1 Precautions for safe handling**

| | | |
|---|---|---|
| Technical measures | : | Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.<br>Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. |
| Advice on safe handling | : | Avoid prolonged or repeated contact with skin.<br>Avoid inhaling vapour and/or mists. |

When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Hygiene measures : Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication "COSHH Essentials".

**7.2 Conditions for safe storage, including any incompatibilities**

Further information on storage stability : Keep container tightly closed and in a cool, well-ventilated place.
Use properly labeled and closable containers.
Store at ambient temperature.
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance may be obtained from the local environmental agency office.

Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.
Unsuitable material: PVC.

Container Advice : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

**7.3 Specific end use(s)**

Specific use(s) : Not applicable

## SECTION 8: Exposure controls/personal protection

**8.1 Control parameters**

**Occupational Exposure Limits**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|---|---|---|---|
| Oil mist, mineral | Not Assigned | TWA (inhalable fraction) | 5 mg/m3 | US. ACGIH Threshold Limit Values |
| Oil mist, mineral | | TWA (Inhalable particulate matter) | 5 mg/m3 | ACGIH |

**Biological occupational exposure limits**

No biological limit allocated.

### 8.2 Exposure controls

**Engineering measures**

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Adequate ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information
Define and maintain procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.
Always observe good occupational hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.
Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.

**Personal protective equipment**

The provided information is made in consideration of the PPE regulation (EU 2016/425) and the CEN European Committee for Standardisation (CEN) standards.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

| | | |
|---|---|---|
| Eye protection | : | Wear full face shield if splashes are likely to occur.<br>Eye and face protection shall comply with the applicable European standards for eye and face protectors, including EN ISO 16321-1 (or any superseding standard), and any other relevant harmonized standards in force at the time of manufacture or use. |
| Hand protection | | |
| Remarks | : | Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. |

| | | |
|---|---|---|
| | | Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.<br>For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. |
| Skin and body protection | : | Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron.<br>Protective clothing approved to EU Standard EN14605. |
| Respiratory protection | : | No respiratory protection is ordinarily required under normal conditions of use.<br>In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.<br>If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.<br>Check with respiratory protective equipment suppliers.<br>Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.<br>Select a filter suitable for combined particulate/organic gases and vapours [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143. |
| Thermal hazards | : | Not applicable |

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Semi-solid at ambient temperature. |
| Colour | : | light brown |
| Odour | : | Slight hydrocarbon |
| Odour Threshold | : | Data not available |
| Dropping point | : | 250 °C<br>Method: IP 396 |
| Melting / freezing point | | Data not available |
| Initial boiling point and boiling | : | Data not available |

range

Flammability

| | | |
|---|---|---|
| Flammability (solid, gas) | : | Not applicable |
| Flammability (liquids) | : | Not classified as flammable but will burn. |

Lower explosion limit and upper explosion limit / flammability limit

| | | |
|---|---|---|
| Upper explosion limit / Upper flammability limit | : | Typical 10 %(V) |
| Lower explosion limit / Lower flammability limit | : | Typical 1 %(V) |

| | | |
|---|---|---|
| Flash point | : | Not applicable |
| Auto-ignition temperature | : | > 320 °C |

Decomposition temperature

| | | |
|---|---|---|
| Decomposition temperature | : | Data not available |
| pH | : | Not applicable |

Viscosity

| | | |
|---|---|---|
| Viscosity, dynamic | : | Data not available |
| Viscosity, kinematic | : | Not applicable |

Solubility(ies)

| | | |
|---|---|---|
| Water solubility | : | negligible |
| Solubility in other solvents | : | Data not available |

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: > 6<br>(based on information on similar products) |
| Vapour pressure | : | < 0.5 Pa (20 °C)<br>estimated value(s) |
| Relative density | : | 1 (15 °C) |
| Density | : | 1,000 kg/m3 (15.0 °C)<br>Method: Unspecified |
| Relative vapour density | : | > 1<br>estimated value(s) |

Particle characteristics

| | | |
|---|---|---|
| Particle size | : | Data not available |

**9.2 Other information**

| | | |
|---|---|---|
| Explosive properties | : | Classification Code: Not classified |
| Oxidizing properties | : | Data not available |
| Flammability (liquids) | : | Not classified as flammable but will burn. |
| Evaporation rate | : | Data not available |
| Conductivity | : | This material is not expected to be a static accumulator. |

## SECTION 10: Stability and reactivity

**10.1 Reactivity**

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

**10.2 Chemical stability**

Stable.
No hazardous reaction is expected when handled and stored according to provisions

**10.3 Possibility of hazardous reactions**

| | | |
|---|---|---|
| Hazardous reactions | : | Reacts with strong oxidising agents. |

**10.4 Conditions to avoid**

| | | |
|---|---|---|
| Conditions to avoid | : | Extremes of temperature and direct sunlight. |

**10.5 Incompatible materials**

| | | |
|---|---|---|
| Materials to avoid | : | Strong oxidising agents. |

**10.6 Hazardous decomposition products**

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

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

| | | |
|---|---|---|
| Information on likely routes of exposure | : | Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion. |

**Acute toxicity**

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (rat): > 5,000 mg/kg<br>Remarks: Low toxicity<br>Based on available data, the classification criteria are not met. |
| Acute inhalation toxicity | : | Remarks: Based on available data, the classification criteria are not met. |
| Acute dermal toxicity | : | LD50 (Rabbit): > 5,000 mg/kg<br>Remarks: Low toxicity<br>Based on available data, the classification criteria are not met. |

**Skin corrosion/irritation**

**Product:**

| | | |
|---|---|---|
| Remarks | : | Slightly irritating to skin.<br>Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.<br>Based on available data, the classification criteria are not met. |

**Serious eye damage/eye irritation**

**Product:**

| | | |
|---|---|---|
| Remarks | : | Causes serious eye irritation. |

**Respiratory or skin sensitisation**

**Product:**

| | | |
|---|---|---|
| Remarks | : | For respiratory and skin sensitisation:<br>Not a sensitiser.<br>Based on available data, the classification criteria are not met. |
| Remarks | : | Experimental data has shown that the concentration of potentially sensitising components present in this product does not induce skin sensitisation. |

**Germ cell mutagenicity**

**Product:**

| | | |
|---|---|---|
| Genotoxicity in vivo | : | Remarks: Non mutagenic<br>Based on available data, the classification criteria are not met. |
| Germ cell mutagenicity- Assessment | : | This product does not meet the criteria for classification in categories 1A/1B. |

**Carcinogenicity**

**Product:**

Remarks : Not a carcinogen.
Based on available data, the classification criteria are not met.

Remarks : Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies.
Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

| Material | GHS/CLP Carcinogenicity Classification |
|---|---|
| Highly refined mineral oil | No carcinogenicity classification. |

**Reproductive toxicity**

**Product:**

Effects on fertility :
Remarks: Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

**STOT - single exposure**

**Product:**

Remarks : Based on available data, the classification criteria are not met.

**STOT - repeated exposure**

**Product:**

Remarks : Based on available data, the classification criteria are not met.

**Repeated dose toxicity**

**Aspiration toxicity**

**Product:**

Not an aspiration hazard., Based on available data, the classification criteria are not met.

### 11.2 Information on other hazards

**Endocrine disrupting properties**

**Product:**

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

**Further information**

**Product:**

| | | |
|---|---|---|
| Remarks | : | Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal.<br>ALL used grease should be handled with caution and skin contact avoided as far as possible. |
| Remarks | : | High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed. |
| Remarks | : | Slightly irritating to respiratory system. |
| Remarks | : | Classifications by other authorities under varying regulatory frameworks may exist. |
| Remarks | : | Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s). |

## SECTION 12: Ecological information

### 12.1 Toxicity

**Product:**

| | | |
|---|---|---|
| Toxicity to fish | : | Remarks: LL/EL/IL50 > 1 <= 10 mg/l<br>Toxic |
| Toxicity to daphnia and other aquatic invertebrates | : | Remarks: LL/EL/IL50 > 1 <= 10 mg/l<br>Toxic |
| Toxicity to algae/aquatic plants | : | Remarks: LL/EL/IL50 > 1 <= 10 mg/l<br>Toxic |
| Toxicity to fish (Chronic toxicity) | : | Remarks: Data not available |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | Remarks: Data not available |
| Toxicity to microorganisms | : | Remarks: Data not available |

**Components:**

**Fatty acids, C18 unsat, reaction products with diethylenetriamine:**

| | | |
|---|---|---|
| M-Factor (Acute aquatic toxicity) | : | 10 |
| M-Factor (Chronic aquatic toxicity) | : | 1 |

### 12.2 Persistence and degradability

**Product:**

| | | |
|---|---|---|
| Biodegradability | : | Remarks: Not readily biodegradable.<br>Major constituents are inherently biodegradable, but contains components that may persist in the environment. |

### 12.3 Bioaccumulative potential

**Product:**

| | | |
|---|---|---|
| Bioaccumulation | : | Remarks: Contains components with the potential to bioaccumulate. |

### 12.4 Mobility in soil

**Product:**

| | | |
|---|---|---|
| Mobility | : | Remarks: Semi-solid under most environmental conditions., If |

it enters soil, it will adsorb to soil particles and will not be mobile.

Remarks: Floats on water.

### 12.5 Results of PBT and vPvB assessment

**Product:**

Assessment : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB..

### 12.6 Endocrine disrupting properties

**Product:**

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

### 12.7 Other adverse effects

**Product:**

Additional ecological information : Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential.
Product is a mixture of non-volatile components, which will not be released to air in any significant quantities under normal conditions of use.

Poorly soluble mixture.
Causes physical fouling of aquatic organisms.

Mineral oil does not cause chronic toxicity to aquatic organisms at concentrations less than 1 mg/l.

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.

Do not dispose into the environment, in drains or in water courses.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local legislation

Waste catalogue :

EU Waste Disposal Code (EWC):

Waste Code :

12 01 12*

Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Classification of waste is always the responsibility of the end user.

Hazardous Waste (England and Wales) Regulations 2005.

## SECTION 14: Transport information

### 14.1 UN number or ID number

| | | |
|---|---|---|
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

### 14.2 UN proper shipping name

| | | |
|---|---|---|
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

### 14.3 Transport hazard class(es)

| | | |
|---|---|---|
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

### 14.4 Packing group

| | | |
|---|---|---|
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

### 14.5 Environmental hazards

| | | |
|---|---|---|
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |

### 14.6 Special precautions for user

| | | |
|---|---|---|
| Remarks | : | Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport. |

### 14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

## SECTION 15: Regulatory information

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

| | | |
|---|---|---|
| REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) | : | Not applicable<br><br>Not applicable |
| REACH - List of substances subject to authorisation (Annex XIV) | : | Product is not subject to Authorisation under REACH. |
| Volatile organic compounds | : | Volatile organic compounds (VOC) content: 0 % |

**Other regulations:**

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Environmental Protection Act 1990 (as amended). Health and Safety at Work etc. Act 1974. Consumers Protection Act 1987. Pollution Prevention and Control Act 1999. Environment Act 1995. Factories Act 1961. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). Control of Major Accident Hazards Regulations 1999 (as amended). Renewable Transport Fuel Obligations Order 2007 (as amended). Energy Act 2011. Environmental Permitting (England and Wales) Regulations 2010 (as amended). Waste (England and Wales) Regulations 2011 (as amended). Planning (Hazardous Substances) Act 1990 and associated regulations. The Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011.

**The components of this product are reported in the following inventories:**

| | | |
|---|---|---|
| EU REACH | : | Not established. |
| US TSCA | : | All components listed. |

### 15.2 Chemical safety assessment.

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## SECTION 16: Other information

**Full text of H-Statements**

| | | |
|---|---|---|
| H302 | : | Harmful if swallowed. |
| H314 | : | Causes severe skin burns and eye damage. |

| | | |
|---|---|---|
| H315 | : | Causes skin irritation. |
| H317 | : | May cause an allergic skin reaction. |
| H318 | : | Causes serious eye damage. |
| H361d | : | Suspected of damaging the unborn child. |
| H361f | : | Suspected of damaging fertility. |
| H400 | : | Very toxic to aquatic life. |
| H410 | : | Very toxic to aquatic life with long lasting effects. |
| H411 | : | Toxic to aquatic life with long lasting effects. |

**Full text of other abbreviations**

| | | |
|---|---|---|
| Acute Tox. | : | Acute toxicity |
| Aquatic Acute | : | Short-term (acute) aquatic hazard |
| Aquatic Chronic | : | Long-term (chronic) aquatic hazard |
| Eye Dam. | : | Serious eye damage |
| Repr. | : | Reproductive toxicity |
| Skin Corr. | : | Skin corrosion |
| Skin Irrit. | : | Skin irritation |
| Skin Sens. | : | Skin sensitisation |
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| ACGIH / TWA | : | 8-hour, time-weighted average |

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; BGW - Biological Limit Values; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LSPN - List of Hazardous Notified Substances (Chile); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT -

Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

| | | |
|---|---|---|
| Training advice | : | Provide adequate information, instruction and training for operators. |
| Other information | : | A vertical bar (\|) in the left margin indicates an amendment from the previous version. |
| Sources of key data used to compile the Safety Data Sheet | : | The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc). |

| **Classification of the mixture:** | | **Classification procedure:** |
|---|---|---|
| Eye Irrit. 2 | H319 | Expert judgement and weight of evidence determination. |
| Aquatic Chronic 3 | H412 | Expert judgement and weight of evidence determination. |

**Identified Uses according to the Use Descriptor System**

**Uses - Worker**

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

**Uses - Worker**

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

**Uses - Worker**

Title : Use of lubricants and greases in open systems.
- Industrial

**Uses - Worker**

Title : Use of lubricants and greases in open systems.
- Professional

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.

GB / EN

**Exposure Scenario - Worker**

| **300000011055** | |
|---|---|
| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
| **Title** | General use of lubricants and greases in vehicles or machinery.- Industrial |
| **Use Descriptor** | **Sector of Use**: SU3<br>**Process Categories**: PROC1, PROC2, PROC8b, PROC9<br>**Environmental Release Categories**: ERC4, ERC7, ATIEL-ATC SPERC 4.Bi.v1 |
| **Scope of process** | 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. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|
| **Section 2.1** | **Control of Worker Exposure** |
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at STP |
| Concentration of the Substance in Mixture/Article | Covers use of substance/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. | |
| **Contributing Scenarios** | **Risk Management Measures** |
| General measures applicable to all activities. | 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.<br>Use suitable eye protection.<br>Avoid direct eye contact with product, also via contamination on hands. |
| General exposures (closed systems)Use in closed process, no likelihood of exposure | No other specific measures identified. |

| | |
|---|---|
| Initial factory fill of equipmentUse in contained systemsUse in closed, continuous process with occasional controlled exposureTransfer of substance or preparation into small containers (dedicated filling line, including weighing) | No other specific measures identified. |
| Initial factory fill of equipment(open systems)Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities | Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).<br>Avoid carrying out activities involving exposure for more than 4 hours |
| Operation of equipment containing engine oils and similar.Use in contained systemsUse in closed process, no likelihood of exposure | No other specific measures identified. |
| Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities | Drain down system prior to equipment opening or maintenance.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.<br>Retain drain downs in sealed storage pending disposal or for subsequent recycle. |
| Equipment cleaning and maintenanceOperation is carried out at elevated temperature (> 20°C above ambient temperature).Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities | Drain down system prior to equipment opening or maintenance.<br>Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.<br>Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls.<br>Retain drain downs in sealed storage pending disposal or for subsequent recycle. |
| Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure | Store substance within a closed system. |
| **Section 2.2** | **Control of Environmental Exposure** |
| **Amounts Used** | |
| EU tonnage (tonnes per year): | 2,631.1 |

| | |
|---|---|
| Fraction of EU tonnage used in region: | 0.1 |
| Fraction of Regional tonnage used locally: | 0.1 |
| **Frequency and Duration of Use** | |
| Emission Days (days/year): | 300 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Negligible wastewater emissions as process operates without water contact. | |
| Release fraction to air from process (after typical onsite RMMs) : | 5.00E-05 |
| Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): | 2.00E-11 |
| Release fraction to soil from process (after typical onsite RMMs): | 0 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Treat air emission to provide a typical removal efficiency of (%) | 70 |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. | |
| User sites are assumed to be provided with oil/water separators or equivalent and for waste water to be discharged via public sewer system. | |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 0.1 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2.00E+03 |
| Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) : | 146,050.2 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| External treatment and disposal of waste should comply with applicable local and/or regional regulations. | |
| **Conditions and measures related to external recovery of waste** | |
| External recovery and recycling of waste should comply with applicable local and/or regional regulations. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - 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.
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

| **Section 3.2 -Environment** |
|---|
| Used ECETOC TRA model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 4.2 -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). |
| If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. |
| For further information see www.ATIEL.org/REACH_GES. |

**Exposure Scenario - Worker**

| **300000011056** | |
|---|---|
| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
| **Title** | General use of lubricants and greases in vehicles or machinery.- Professional |
| **Use Descriptor** | **Sector of Use**: SU22<br>**Process Categories**: PROC1, PROC2, PROC8a, PROC8b, PROC20<br>**Environmental Release Categories**: ERC9a, ERC9b, |
| **Scope of process** | 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. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|
| **Section 2.1** | **Control of Worker Exposure** |
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at STP |
| Concentration of the Substance in Mixture/Article | Covers use of substance/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. | |
| **Contributing Scenarios** | **Risk Management Measures** |
| General measures applicable to all activities. | 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.<br>Use suitable eye protection.<br>Avoid direct eye contact with product, also via contamination on hands. |
| Operation of equipment containing engine oils and similar.Use in contained systemsUse in closed pro- | No other specific measures identified. |

| | |
|---|---|
| cess, no likelihood of exposure | |
| Material transfersNon-dedicated facilityTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities | Avoid carrying out activities involving exposure for more than 4 hours<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. |
| Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilitiesHeat and pressure transfer fluids in dispersive, professional use but closed systems | Drain down system prior to equipment opening or maintenance.<br>Retain drain downs in sealed storage pending disposal or for subsequent recycle. |
| Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure | Store substance within a closed system. |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| **Amounts Used** | |
| EU tonnage (tonnes per year): | 5,387.2 |
| Fraction of EU tonnage used in region: | 0.1 |
| Fraction of Regional tonnage used locally: | 0.1 |
| **Frequency and Duration of Use** | |
| Emission Days (days/year): | 365 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Negligible wastewater emissions as process operates without water contact. | |
| Release fraction to air from process (after typical onsite RMMs) : | 1.00E-04 |
| Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): | 5.00E-04 |
| Release fraction to soil from process (after typical onsite RMMs): | 1E-03 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. | |

| **Organisational measures to prevent/limit release from site** | |
|---|---|
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 0.1 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2.00E+03 |
| Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) : | 1,474.0 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| External treatment and disposal of waste should comply with applicable local and/or regional regulations. | |
| **Conditions and measures related to external recovery of waste** | |
| External recovery and recycling of waste should comply with applicable local and/or regional regulations. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - 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.<br>The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | |

| **Section 3.2 -Environment** |
|---|
| Used ECETOC TRA model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 4.2 -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). |
| If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. |
| For further information see www.ATIEL.org/REACH_GES. |

**Exposure Scenario - Worker**

| **300000011057** | |
|---|---|
| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
| **Title** | Use of lubricants and greases in open systems.- Industrial |
| **Use Descriptor** | **Sector of Use**: SU3<br>**Process Categories**: PROC1, PROC2, PROC7, PROC8b, PROC9, PROC10, PROC13<br>**Environmental Release Categories**: ERC4, ATIEL-ATC SPERC 4.Ci.v1 |
| **Scope of process** | 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. mould releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|
| **Section 2.1** | **Control of Worker Exposure** |
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at STP |
| Concentration of the Substance in Mixture/Article | Covers use of substance/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. | |
| **Contributing Scenarios** | **Risk Management Measures** |
| General measures applicable to all activities. | 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.<br>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.<br>Use suitable eye protection.<br>Avoid direct eye contact with product, also via contamination |

| | |
|---|---|
| | on hands. |
| Material transfersManual-Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities | Avoid carrying out activities involving exposure for more than 1 hour. |
| Material transfersAutomated process with (semi) closed systems.Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilitiesTransfer of substance or preparation into small containers (dedicated filling line, including weighing) | Ensure material transfers are under containment or extract ventilation. |
| Roller, spreader, flow applicationRoller application or brushing | Provide extraction ventilation at points where emissions occur. |
| SprayingIndustrial spraying | Carry out in a vented booth or extracted enclosure.<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. |
| Treatment by dipping and pouringTreatment of articles by dipping and pouring | Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).<br>Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. |
| Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities | Drain down system prior to equipment opening or maintenance.<br>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.<br>Retain drain downs in sealed storage pending disposal or for subsequent recycle. |
| Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure | Store substance within a closed system. |
| **Section 2.2** | **Control of Environmental Exposure** |
| **Amounts Used** | |
| EU tonnage (tonnes per year): | 380.9 |
| Fraction of EU tonnage used in region: | 0.1 |

| | |
|---|---|
| Fraction of Regional tonnage used locally: | 0.1 |
| **Frequency and Duration of Use** | |
| Emission Days (days/year): | 300 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Negligible wastewater emissions as process operates without water contact. | |
| Release fraction to air from process (after typical onsite RMMs) : | 5.00E-05 |
| Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): | 2.00E-11 |
| Release fraction to soil from process (after typical onsite RMMs): | 0 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Treat air emission to provide a typical removal efficiency of (%) | 70 |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. | |
| User sites are assumed to be provided with oil/water separators or equivalent and for waste water to be discharged via public sewer system. | |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 0.1 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2.00E+03 |
| Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) : | 21,141.6 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| External treatment and disposal of waste should comply with applicable local and/or regional regulations. | |
| **Conditions and measures related to external recovery of waste** | |
| External recovery and recycling of waste should comply with applicable local and/or regional regulations. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - 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. | |

| |
|---|
| The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. |

| **Section 3.2 -Environment** |
|---|
| Used ECETOC TRA model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 4.2 -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). |
| If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. |
| For further information see www.ATIEL.org/REACH_GES. |

**Exposure Scenario - Worker**

| **300000011058** | |
|---|---|
| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
| **Title** | Use of lubricants and greases in open systems.- Professional |
| **Use Descriptor** | **Sector of Use**: SU22<br>**Process Categories**: PROC1, PROC2, PROC8a, PROC10, PROC11, PROC13<br>**Environmental Release Categories**: ERC8a, ERC8d, |
| **Scope of process** | 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. mould releases, corrosion protection, slideways. Includes associated product storage, material transfers, sampling and maintenance activities. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|
| **Section 2.1** | **Control of Worker Exposure** |
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at STP |
| Concentration of the Substance in Mixture/Article | Covers use of substance/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. | |
| **Contributing Scenarios** | **Risk Management Measures** |
| General measures applicable to all activities. | 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.<br>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.<br>Use suitable eye protection.<br>Avoid direct eye contact with product, also via contamination on hands. |

| | |
|---|---|
| Material transfersManual-Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities | Avoid carrying out activities involving exposure for more than 1 hour. |
| Roller, spreader, flow applicationRoller application or brushing | 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.<br>Avoid carrying out activities involving exposure for more than 4 hours<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. |
| SprayingNon industrial spraying | 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.<br>Avoid carrying out activities involving exposure for more than 1 hour.<br>Wear a respirator conforming to EN140 with Type A/P2 filter or better.<br>Wear suitable coveralls to prevent exposure to the skin.<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. |
| Treatment by dipping and pouringTreatment of articles by dipping and pouring | 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. |
| Equipment cleaning and maintenanceTransfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities | Drain down system prior to equipment opening or maintenance.<br>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.<br>Avoid carrying out activities involving exposure for more than 4 hours<br>Retain drain downs in sealed storage pending disposal or for subsequent recycle. |
| Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure | Store substance within a closed system. |
| **Section 2.2** | **Control of Environmental Exposure** |
| **Amounts Used** | |
| EU tonnage (tonnes per year): | 224.0 |
| Fraction of EU tonnage used in region: | 0.1 |

| | |
|---|---|
| Fraction of Regional tonnage used locally: | 0.1 |
| **Frequency and Duration of Use** | |
| Emission Days (days/year): | 365 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Negligible wastewater emissions as process operates without water contact. | |
| Release fraction to air from process (after typical onsite RMMs) : | |
| Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): | 5.00E-04 |
| Release fraction to soil from process (after typical onsite RMMs): | 1E-03 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. | |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Assumed domestic sewage treatment plant flow (m3/d) | 2.00E+03 |
| Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) : | 186.3 |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 0.1 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| External treatment and disposal of waste should comply with applicable local and/or regional regulations. | |
| **Conditions and measures related to external recovery of waste** | |
| External recovery and recycling of waste should comply with applicable local and/or regional regulations. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - 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.<br>The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | |

| **Section 3.2 -Environment** |
|---|
| Used ECETOC TRA model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 4.2 -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). |
| If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. |
| For further information see www.ATIEL.org/REACH_GES. |