

# SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

## Shell Gadus S3 V460 2

Version 2.0      Revision Date: 10.09.2024      SDS Number: 800001006666      Date of last issue: 02.04.2024  
Print Date 11.09.2024

### 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 (UFI) : M6H4-U0TS-1000-826W

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

Use of the Sub-stance/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 : Skeljungur hf  
Borgartún 26  
105 Reykjavík  
Telephone : +354 (444) 3000  
Telefax :  
Contact for Safety Data Sheet : msds@skeljungur.is

#### 1.4 Emergency telephone number

: Emergency Line: Ambulance, Fire Department and Police, Phone 112  
; Toxic Center of the National University Hospital Phone: 543-2222

### 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.

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### 2.2 Label elements

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

Hazard pictograms	:	
Signal word	:	Warning
Hazard statements	:	<b>PHYSICAL HAZARDS:</b> Not classified as a physical hazard according to CLP criteria. <b>HEALTH HAZARDS:</b> H319 Causes serious eye irritation. <b>ENVIRONMENTAL HAZARDS:</b> H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	:	<b>Prevention:</b> P273 Avoid release to the environment. P280 Wear protective gloves/ eye protection/ face protection. <b>Response:</b> 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. <b>Storage:</b> No precautionary phrases. <b>Disposal:</b> 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.

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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% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

#### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Reaction products of boric acid and lithium hydroxide	Not Assigned 701-475-3 01-2120772309-47	Acute Tox. 4; H302 Eye Dam. 1; H318 Repr. 2; H361d  specific concentration limit Repr. 2; H361d 7,8 %	1 - 2,9
Zinc dialkyldithiophosphate	101747-77-7	Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 2; H411	1 - 1,9
Alkaryl amine	68411-46-1 270-128-1 01-2119491299-23	Repr. 2; H361f	0,1 - 0,9
Fatty acids, C18 unsat, reaction products with diethylenetriamine	1226892-43-8	Skin Corr. 1C; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400  M-Factor (Acute aquatic toxicity): 10	0,25 - 0,9

For explanation of abbreviations see section 16.

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### 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 diarrhoea. 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.

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### 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.

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## 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 fire-fighting : 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.

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### SECTION 6: Accidental release measures

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

Personal precautions : 6.1.1 For non emergency personnel:  
Avoid contact with skin and eyes.  
6.1.2 For emergency responders:  
Avoid contact with skin and eyes.

#### 6.2 Environmental precautions

Environmental precautions : Use appropriate containment to prevent uncontrolled release.  
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.

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### 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.  
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.  
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.

#### 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.

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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 (Particles (mist))	1 mg/m <sup>3</sup>	IS OEL
	Further information: When certain oils are heated, polycyclic aromatic hydrocarbons (PAH) are produced which can have a carcinogenic effect. Such substances can also be present in mineral oils., For mist from aqueous cutting fluid or suchlike, which may also include substances other than oils, the value is applied as a total content with regard to the non-aqueous part. For substances with individual lower limit values, these are applied.			
Oil mist, mineral		TWA (inhalable fraction)	5 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values
Oil mist, mineral		TWA (Mist)	1 mg/m <sup>3</sup>	IS OEL

#### 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 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.

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Drain down system prior to equipment break-in or maintenance.  
Retain drain downs in sealed storage pending disposal or subsequent recycle.  
Always observe good personal 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 directive (Council Directive 89/686/EEC) 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.  
Approved to EU Standard EN166.

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. 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.  
Protective clothing approved to EU Standard EN14605.

Respiratory protection : No respiratory protection is ordinarily required under normal conditions of use.  
In accordance with good industrial hygiene practices, precau-



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tions should be taken to avoid breathing of material.  
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. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. 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

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### 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  
Method: IP 396

Melting / freezing point : Data not available

Initial boiling point and boiling range : Data not available

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

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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  
(based on information on similar products)

Vapour pressure : < 0,5 Pa (20 °C)  
estimated value(s)

Relative density : 1 (15 °C)

Density : 1.000 kg/m<sup>3</sup> (15,0 °C)  
Method: Unspecified

Relative vapour density : > 1  
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.

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### 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.

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

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### Skin corrosion/irritation

**Product:**

Remarks : Slightly irritating to skin.  
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.  
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:  
Not a sensitiser.  
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  
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.

<b>Material</b>	<b>GHS/CLP Carcinogenicity Classification</b>
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Highly refined mineral oil	No carcinogenicity classification.
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### 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.

### 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.  
ALL used grease should be handled with caution and skin contact avoided as far as possible.

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- 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).
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### SECTION 12: Ecological information

#### 12.1 Toxicity

**Product:**

- Toxicity to fish : Remarks: LL/EL/IL50 > 1 <= 10 mg/l  
Toxic
- Toxicity to daphnia and other aquatic invertebrates : Remarks: LL/EL/IL50 > 1 <= 10 mg/l  
Toxic
- Toxicity to algae/aquatic plants : Remarks: LL/EL/IL50 > 1 <= 10 mg/l  
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

#### 12.2 Persistence and degradability

**Product:**

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

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### 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.

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

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

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

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

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### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADR : 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  
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



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**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  
**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  
**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.

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## 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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : 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.

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

REACH : Not established.

TSCA : All components listed.

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### 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. (Causing atrophy of the testes)  
H400 : Very toxic to aquatic life.  
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  
IS OEL : Iceland. Regulation on occupational exposure limits.  
IS OEL / TWA : Time weighted average  
IS OEL / TWA : Long term exposure limit

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; 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 Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Ef-

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fect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

- 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.

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- 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.

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### Exposure Scenario - Worker

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

<b>SECTION 2</b>	<b>OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>
<b>Section 2.1</b>	<b>Control of Worker Exposure</b>
<b>Product Characteristics</b>	
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).,
<b>Frequency and Duration of Use</b>	
Covers daily exposures up to 8 hours (unless stated differently).	
<b>Other Operational Conditions affecting Exposure</b>	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
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. Use suitable eye protection. 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, contin-	No other specific measures identified.

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uous process with occasional controlled exposure- Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
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). 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. Provide a good standard of general 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.
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. Provide extract ventilation to emission points when contact with warm (>50oC) product is likely. 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.
Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure	Store substance within a closed system.
<b>Section 2.2</b>	<b>Control of Environmental Exposure</b>
<b>Amounts Used</b>	
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
<b>Frequency and Duration of Use</b>	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10

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Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
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
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process re-release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
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.	
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
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
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
<b>Conditions and measures related to external recovery of waste</b>	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 - Health</b>	
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.	

<b>Section 3.2 -Environment</b>	
Used ECETOC TRA model.	

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<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 - Health</b>	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
<b>Section 4.2 -Environment</b>	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 ( <a href="http://cefic.org">http://cefic.org</a> ). 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 <a href="http://www.ATIEL.org/REACH_GES">www.ATIEL.org/REACH_GES</a> .



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### Exposure Scenario - Worker

<b>300000011056</b>	
<b>SECTION 1</b>	<b>EXPOSURE SCENARIO TITLE</b>
<b>Title</b>	General use of lubricants and greases in vehicles or machinery.- Professional
<b>Use Descriptor</b>	<b>Sector of Use:</b> SU22 <b>Process Categories:</b> PROC1, PROC2, PROC8a, PROC8b, PROC20 <b>Environmental Release Categories:</b> ERC9a, ERC9b, ATIEL-ATC SPERC 9.Bp.v1
<b>Scope of process</b>	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.

<b>SECTION 2</b>	<b>OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>
<b>Section 2.1</b>	<b>Control of Worker Exposure</b>
<b>Product Characteristics</b>	
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).,
<b>Frequency and Duration of Use</b>	
Covers daily exposures up to 8 hours (unless stated differently).	
<b>Other Operational Conditions affecting Exposure</b>	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
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. Use suitable eye protection. 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 process, no likelihood of exposure	No other specific measures identified.

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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 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. 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.
<b>Section 2.2</b>	<b>Control of Environmental Exposure</b>
<b>Amounts Used</b>	
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
<b>Frequency and Duration of Use</b>	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
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
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	

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Estimated substance removal from wastewater via domestic sewage treatment (%)	0,1
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d)	2,00E+03
Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day) :	1.474,0
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
<b>Conditions and measures related to external recovery of waste</b>	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 - Health</b>	
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.	

<b>Section 3.2 -Environment</b>	
Used ECETOC TRA model.	

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

<b>Section 4.2 -Environment</b>	
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 ( <a href="http://cefic.org">http://cefic.org</a> ).	
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 <a href="http://www.ATIEL.org/REACH_GES">www.ATIEL.org/REACH_GES</a> .	

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### Exposure Scenario - Worker

<b>300000011057</b>	
<b>SECTION 1</b>	<b>EXPOSURE SCENARIO TITLE</b>
<b>Title</b>	Use of lubricants and greases in open systems.- Industrial
<b>Use Descriptor</b>	<b>Sector of Use:</b> SU3 <b>Process Categories:</b> PROC1, PROC2, PROC7, PROC8b, PROC9, PROC10, PROC13 <b>Environmental Release Categories:</b> ERC4, ATIEL-ATC SPERC 4.Ci.v1
<b>Scope of process</b>	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.

<b>SECTION 2</b>	<b>OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>
<b>Section 2.1</b>	<b>Control of Worker Exposure</b>
<b>Product Characteristics</b>	
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).,
<b>Frequency and Duration of Use</b>	
Covers daily exposures up to 8 hours (unless stated differently).	
<b>Other Operational Conditions affecting Exposure</b>	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
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. 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.
Material transfersManual-	Avoid carrying out activities involving exposure for more than

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Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	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. 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). 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. Provide a good standard of general 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.
Storage.Use in closed process, no likelihood of exposureUse in closed, continuous process with occasional controlled exposure	Store substance within a closed system.
<b>Section 2.2 Control of Environmental Exposure</b>	
<b>Amounts Used</b>	
EU tonnage (tonnes per year):	380,9
Fraction of EU tonnage used in region:	0,1
Fraction of Regional tonnage used locally:	0,1
<b>Frequency and Duration of Use</b>	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100

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<b>Other Operational Conditions affecting Environmental Exposure</b>	
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
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process re-release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
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.	
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
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
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
<b>Conditions and measures related to external recovery of waste</b>	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 - Health</b>	
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.	

<b>Section 3.2 -Environment</b>
Used ECETOC TRA model.

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE</b>
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## Shell Gadus S3 V460 2

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EXPOSURE SCENARIO
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<b>Section 4.1 - Health</b>
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Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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<b>Section 4.2 -Environment</b>
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Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
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Further details on scaling and control technologies are provided in SpERC factsheet ( <a href="http://cefic.org">http://cefic.org</a> ).
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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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For further information see <a href="http://www.ATIEL.org/REACH_GES">www.ATIEL.org/REACH_GES</a> .
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### Exposure Scenario - Worker

<b>300000011058</b>	
<b>SECTION 1</b>	<b>EXPOSURE SCENARIO TITLE</b>
<b>Title</b>	Use of lubricants and greases in open systems.- Professional
<b>Use Descriptor</b>	<b>Sector of Use:</b> SU22 <b>Process Categories:</b> PROC1, PROC2, PROC8a, PROC10, PROC11, PROC13 <b>Environmental Release Categories:</b> ERC8a, ERC8d, ATIEL-ATC SPERC 8.Cp.v1
<b>Scope of process</b>	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.

<b>SECTION 2</b>	<b>OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>
<b>Section 2.1</b>	<b>Control of Worker Exposure</b>
<b>Product Characteristics</b>	
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).,
<b>Frequency and Duration of Use</b>	
Covers daily exposures up to 8 hours (unless stated differently).	
<b>Other Operational Conditions affecting Exposure</b>	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
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. 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.
Material transfersManual-	Avoid carrying out activities involving exposure for more than



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Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	1 hour.
Roller, spreader, flow application Roller 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. Avoid carrying out activities involving exposure for more than 4 hours Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Spraying Non 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. 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.
Treatment by dipping and pouring Treatment 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 maintenance Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Drain down system prior to equipment opening 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.
Storage. Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure	Store substance within a closed system.
<b>Section 2.2 Control of Environmental Exposure</b>	
<b>Amounts Used</b>	
EU tonnage (tonnes per year):	224,0
Fraction of EU tonnage used in region:	0,1
Fraction of Regional tonnage used locally:	0,1
<b>Frequency and Duration of Use</b>	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10

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Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
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
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process re-release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
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
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
<b>Conditions and measures related to external recovery of waste</b>	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

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<b>Section 3.2 -Environment</b>	
Used ECETOC TRA model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 - Health</b>	
Where other Risk Management Measures/Operational Conditions are adopted, then users	

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should ensure that risks are managed to at least equivalent levels.

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