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

Shell Gadus S5 V42P 2.5

Version	Revision Date:	SDS Number:	Date of last issue: 03.11.2022
2.11	30.03.2023	800001006674	Print Date 31.03.2023

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

1.1 Product identifier

Trade name : Shell Gadus S5 V42P 2.5
Product code : 001D8525

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 : **Maagtechnic AG**
Sonnentalstrasse 8
CH-8600 Dübendorf 1
Telephone : +41 44 824 91 91
Telefax : +41 44 821 59 09
Contact for Safety Data Sheet : lubeinfo@maagtechnic.com

1.4 Emergency telephone number

: Swiss Toxicological Information Centre, CH-8028 Zürich info@toxi.ch, emergency number (CH) 145, +41 (0) 44 251 51 51

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

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 : No Hazard Symbol required
Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:

Not classified as a physical hazard according to CLP criteria.
HEALTH HAZARDS:
Not classified as a health hazard under CLP criteria.
ENVIRONMENTAL HAZARDS:
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P273 Avoid release to the environment.

Response:
No precautionary phrases.

Storage:
No precautionary phrases.

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

Sensitising components : Contains Zinc Naphthenate
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 severely hydrotreated slack wax and additives.

Components

Chemical name	CAS-No. EC-No. Index-No.	Classification	Concentration (% w/w)

	Registration number		
Distillates (Fischer - Tropsch), heavy, C18-50 – branched, cyclic and linear	848301-69-9 482-220-0 01-0000020163-82	Asp. Tox. 1; H304	60 - 70
Naphthenic acids, zinc salts, basic	84418-50-8 282-762-6 01-2119988500-34	Skin Sens. 1B; H317 Eye Irrit. 2; H319 Aquatic Chronic 2; H411	0,1 - 0,9
Zinc oxide	1314-13-2 215-222-5 030-013-00-7 01-2119463881-32	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	0,25 - 0,9
Alkaryl amine	68411-46-1 270-128-1 01-2119491299-23	Repr. 2; H361	0,1 - 0,9

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

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 : Flush eye with copious quantities of water.
Remove contact lenses, if present and easy to do. Continue rinsing.

If persistent irritation occurs, obtain medical attention.

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.

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 : Notes to doctor/physician:
Treat symptomatically.
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:
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 avoid environmental contamination. 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.
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 stor- : Keep container tightly closed and in a cool, well-ventilated

age stability		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.
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
	Further information: National Institute for Occupational Safety and Health, Deutsche Forschungsgemeinschaft, For pure mineral oil spray with a boiling point of > 350°C without any additives, a guidance value of 0.2 mg/m3, measured according to the NIOSH-method, could be taken.			
Oil mist, mineral	Not Assigned	TWA (inhalable fraction)	5 mg/m3	US. ACGIH Threshold Limit Values

Biological occupational exposure limits

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.

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	:	If material is handled such that it could be splashed into eyes, protective eyewear is recommended. 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	:	Skin protection is not ordinarily required beyond standard work clothes. It is good practice to wear chemical resistant gloves.
Respiratory protection	:	No respiratory protection is ordinarily required under normal conditions of use.

In accordance with good industrial hygiene practices, precautions 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.

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	:	180 °C Method: IP 396
Melting / freezing point		Not applicable
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
Decomposition temperature		

Decomposition temperature	:	Data not available
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	42 mm2/s (40,0 °C) Method: ASTM D445 8 mm2/s (100 °C) Method: ASTM D445
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	:	0,900 (15 °C)
Density	:	900 kg/m3 (15,0 °C) Method: Unspecified
Relative vapour density	:	> 1 estimated value(s)

9.2 Other information

Explosives	:	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
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.

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 : Slightly irritating to the eye.
Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks : For respiratory and skin sensitisation:
Not a sensitiser.
Based on available data, the classification criteria are not met.

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.

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

Material	GHS/CLP Carcinogenicity Classification
Zinc oxide	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.

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.

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 10-100 mg/l Harmful
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: LL/EL/IL50 10-100 mg/l Harmful
Toxicity to algae/aquatic plants	:	Remarks: LL/EL/IL50 10-100 mg/l Harmful
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:

Zinc oxide:

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

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.

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).

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 dis-

posed 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.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as a dangerous good

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

ADN : Not regulated as a dangerous good

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)

ADN : Not regulated as a dangerous good

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

ADN : Not regulated as a dangerous good
CDNI Inland Water Waste Agreement : NST 3411 lubricating greases

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

ADN : Not regulated as a dangerous good

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.

Additional Information **:** ADN - Classified ID9006 when carried in tank vessels.

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.

Waters Protection Ordinance (WPO 814.201)
Water pollution class : Remarks: Swiss Class B, (www.tankportal.ch)

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 : Notified with Restrictions.

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

H304	:	May be fatal if swallowed and enters airways.
H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H361	:	Suspected of damaging fertility or the unborn child.
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

Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
Skin Sens.	:	Skin sensitisation

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 - Emergen-

cy 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) Effect 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:**
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.

CH / EN

Exposure Scenario - Worker

300000000189	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	General use of lubricants and greases in vehicles or machinery.- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC 1, PROC 2, PROC 8b, PROC 9 **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**
Additional Information	No exposure assessment presented for human health.

Section 2.1	**Control of Worker Exposure**
Product Characteristics	

Contributing Scenarios	**Risk Management Measures**

Section 2.2	**Control of Environmental Exposure**
Amounts Used	
EU tonnage (tonnes per year):	2,63E+03
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. 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 (%)	9,23E-02
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) :	2,634321E+06
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	
No exposure assessment presented for human health.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
No exposure assessment presented for human health.	

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

300000010651	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	General use of lubricants and greases in vehicles or machinery.- Professional
Use Descriptor	**Sector of Use**: SU22 **Process Categories**: PROC 1, PROC 2, PROC 8a, PROC 8b, PROC 20 **Environmental Release Categories**: ERC9a, ERC9b, ATIEL-ATC SPERC 9.Bp.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**
Additional Information	No exposure assessment presented for human health.

Section 2.1	**Control of Worker Exposure**
Product Characteristics	

Contributing Scenarios	**Risk Management Measures**

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) :	
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. 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) :	29.727
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	
No exposure assessment presented for human health.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
No exposure assessment presented for human health.	

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

300000010679	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use of lubricants and greases in open systems.- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC 1, PROC 2, PROC 7, PROC 8b, PROC 9, PROC 10, PROC 13 **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**
Additional Information	No exposure assessment presented for human health.

Section 2.1	**Control of Worker Exposure**
Product Characteristics	

Contributing Scenarios	**Risk Management Measures**

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 emis-	

sions 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. 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) :	386.082,9
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	
No exposure assessment presented for human health.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
No exposure assessment presented for human health.	

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

300000010680	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use of lubricants and greases in open systems.- Professional
Use Descriptor	**Sector of Use**: SU22 **Process Categories**: PROC 1, PROC 2, PROC 8a, PROC 10, PROC 11, PROC 13 **Environmental Release Categories**: ERC8a, ERC8d, ATIEL-ATC SPERC 8.Cp.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**
Additional Information	No exposure assessment presented for human health.

Section 2.1	**Control of Worker Exposure**
Product Characteristics	

Contributing Scenarios	**Risk Management Measures**

Section 2.2	**Control of Environmental Exposure**
Amounts Used	
EU tonnage (tonnes per year):	224
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 emis-	

sions 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. 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) :	3.443
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	
No exposure assessment presented for human health.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
No exposure assessment presented for human health.	

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.