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

1.1 Product identifier

Trade name	:	Ondina X 420
Product code	:	001E2771
Registration number	:	01-0000020163-82-0001
CAS-No.	:	1262661-88-0

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

Use of the Substance/Mixture	:	Process oil. Please refer to Ch16 for the registered uses under REACH.
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	:	
Email 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)

Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements	:	PHYSICAL HAZARDS: Not classified as a physical hazard according to CLP criteria. HEALTH HAZARDS: H304 May be fatal if swallowed and enters airways. ENVIRONMENTAL HAZARDS: Not classified as environmental hazard according to CLP criteria.
Precautionary statements	:	**Prevention:** No precautionary phrases. **Response:** P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331 Do NOT induce vomiting. **Storage:** P405 Store locked up. **Disposal:** P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:
Contains Distillates (Fischer-Tropsch), heavy, C18-50- branched and linear

2.3 Other hazards

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Used oil may contain harmful impurities.
Not classified as flammable but will burn.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical nature : Fischer-Tropsch derived base oil, consisting largely of branched, cyclic and linear hydrocarbons having carbon numbers in the range of C18 to C50.

Hazardous components

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

	EC-No.	
Distillates (Fischer-Tropsch), heavy, C18-50- branched and linear	1262661-88-0	<= 100

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.

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 : Call emergency number for your location / facility.
If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
The onset of respiratory symptoms may be delayed for several hours after exposure.
Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.
Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Potential for chemical pneumonitis.
Call a doctor or poison control center for guidance.

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 materials for containment and cleaning up

Methods for cleaning up	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent.

Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

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

General Precautions	:	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.

7.1 Precautions for safe handling

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.
Product Transfer	:	Proper grounding and bonding procedures should be used during all bulk transfer operations to avoid static accumulation.

7.2 Conditions for safe storage, including any incompatibilities

Other data	:	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.
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)	:	Please refer to Ch16 and/or the annexes for the registered uses under REACH.

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		TWA (Particles (mist))	1 mg/m3	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/m3	US. ACGIH Threshold Limit Values
Oil mist, mineral		TWA (Mist)	1 mg/m3	IS OEL

Biological occupational exposure limits

No biological limit allocated.

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:
Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods
http://www.cdc.gov/niosh/

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods
http://www.osha.gov/

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances
http://www.hse.gov.uk/

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp

L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

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.
Do not ingest. If swallowed, then seek immediate medical assistance

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.

Thermal hazards : Not applicable

Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.
Information on accidental release measures are to be found in section 6.
Take appropriate measures to fulfil the requirements of

relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Section 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	Liquid at room temperature.
Colour	:	clear
Odour Threshold	:	Data not available
pH	:	Not applicable
pour point	:	-36 °CMethod: ISO 3016
Initial boiling point and boiling range	:	> 280 °Cestimated value(s)
Flash point	:	225 °C Method: ISO 2592
Evaporation rate	:	Data not available
Flammability (solid, gas)	:	Data not available
Upper explosion limit	:	Typical 10 %(V)
Lower explosion limit	:	Typical 1 %(V)
Vapour pressure	:	< 0,5 Pa (20 °C) estimated value(s)
Relative vapour density	:	> 1estimated value(s)
Relative density	:	0,816 (15 °C)
Density	:	816 kg/m3 (15,0 °C) Method: ISO 12185
Solubility(ies)		
Water solubility	:	negligible
Solubility in other solvents	:	Data not available
Partition coefficient: n-octanol/water	:	log Pow: > 6

Auto-ignition temperature	:	> 320 °C
Decomposition temperature	:	Data not available
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	40 mm2/s (20 °C) Method: ISO 3104
		4,1 mm2/s (100 °C) Method: ISO 3104
		18 mm2/s (40,0 °C) Method: ISO 3104
Explosive properties	:	Not classified
Oxidizing properties	:	Data not available

9.2 Other information

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

Hazardous decomposition	:	No decomposition if stored and applied as directed.

products

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Basis for assessment	:	Information given is based on product testing, and/or similar products, and/or components.
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	:	LC 50 Rat: > 5 mg/l Exposure time: 4 h Remarks: Low toxicity by inhalation.
Acute dermal toxicity	:	LD50 Rabbit: > 5.000 mg/kg Remarks: Low toxicity:

Skin corrosion/irritation

Product:

Remarks: Not irritating to skin.

Serious eye damage/eye irritation

Product:

Remarks: Not irritating to eye.

Respiratory or skin sensitisation

Product:

Remarks: For respiratory and skin sensitisation:, Not a skin sensitiser.

Germ cell mutagenicity

Product:

: Remarks: Non mutagenic

Carcinogenicity

Product:

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

Material	GHS/CLP Carcinogenicity Classification
Distillates (Fischer-Tropsch), heavy, C18-50- branched and linear	No carcinogenicity classification.

Reproductive toxicity

Product:

:

Remarks: Does not impair fertility., Not a developmental toxicant.

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:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Further information

Product:

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal., ALL used oil should be handled with caution and skin contact avoided as far as possible.

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

Summary on evaluation of the CMR properties

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

SECTION 12: Ecological information

12.1 Toxicity

Basis for assessment	:	Information given is based on product testing.
Product:		
Toxicity to fish (Acute toxicity)	:	Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to crustacean (Acute toxicity)	:	Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to algae/aquatic plants (Acute toxicity)	:	Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to fish (Chronic toxicity)	:	Remarks: NOEC/NOEL > 100 mg/l
Toxicity to crustacean (Chronic toxicity)	:	Remarks: NOEC/NOEL > 100 mg/l
Toxicity to microorganisms (Acute toxicity)	:	Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: Inherently biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: Does not bioaccumulate significantly.
Partition coefficient: n-	:	log Pow: > 6

octanol/water

12.4 Mobility in soil

Product:

Mobility : Remarks: Liquid 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 : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

12.6 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.
Films formed on water may affect oxygen transfer and damage organisms., Causes physical fouling of aquatic organisms.

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.

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.

SECTION 14: Transport information

14.1 UN number

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.2 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

ADR : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.4 Packing group

ADR : Not regulated as a dangerous good
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 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV) : Product is not subject to Authorisation under REACH.

Volatile organic compounds : 0 %

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), annex XIV.
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), annex XVII.
Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work and its amendments.
Directive 1994/33/EC on the protection of young people at work and its amendments.
Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding and its amendments.

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

EINECS : All components listed or polymer exempt.
TSCA : All components listed.

15.2 Chemical safety assessment

A Chemical Safety Assessment was performed for this substance.

SECTION 16: Other information

Full text of other abbreviations

Asp. Tox. Aspiration hazard
Abbreviations and Acronyms : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS = Australian Inventory of Chemical Substances
ASTM = American Society for Testing and Materials
BEL = Biological exposure limits
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
CAS = Chemical Abstracts Service
CEFIC = European Chemical Industry Council

CLP = Classification Packaging and Labelling
COC = Cleveland Open-Cup
DIN = Deutsches Institut fur Normung
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals
ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPV = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
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).

Identified Uses according to the Use Descriptor System
Uses - Worker
Title : Distribution of substance- Industrial

Uses - Worker
Title : Formulation & (re)packing of substances and mixtures- Industrial

Uses - Worker
Title : Use as binders and release agents- Professional

Uses - Worker
Title : Use in Agrochemicals uses- Professional

Uses - Worker
Title : Lubricant- Industrial

Uses - Worker
Title : Lubricant- ProfessionalLow Environmental Release

Uses - Worker
Title : Lubricant- ProfessionalHigh Environmental Release

Uses - Worker
Title : Use in laboratories- Industrial

Identified Uses according to the Use Descriptor System
Uses - Consumer
Title : Use in Agrochemicals uses
- Consumer

Uses - Consumer
Title : Use as a fuel
- Consumer

Uses - Consumer
Title : Lubricants

- Consumer
Low Environmental Release

Uses - Consumer

Title	:	Lubricants - Consumer High Environmental Release

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Exposure Scenario - Worker

300000010363	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Distribution of substance- Industrial
Use Descriptor	**Sector of Use**: SU 3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15 **Environmental Release Categories**: ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SpERC 1.1b.v1
Scope of process	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Process sampling	No other specific measures identified.
Laboratory activities	No other specific measures identified.
Bulk transfers(closed systems)	No other specific measures identified.
Bulk transfers(open systems)	No other specific measures identified.
Drum and small package	No other specific measures identified.

filling	
Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.
Bulk product storage	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	8,5E+05
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1,7E+03
Maximum daily site tonnage (kg/day):	1,7E+04
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	100
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	1,0E-04
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-07
Release fraction to soil from process (initial release prior to RMM):	1E-05
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	
Risk from environmental exposure is driven by freshwater sediment.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	64,4
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0,0
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite	94,7

(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,1E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010364	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Formulation & (re)packing of substances and mixtures-Industrial
Use Descriptor	**Sector of Use**: SU 10 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15 **Environmental Release Categories**: ERC2, ESVOC SpERC 2.2.v1
Scope of process	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance Risk Management Measures are based on qualitative risk characterisation.
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Batch processes at elevated temperaturesUse in contained batch processes	No other specific measures identified.
Process sampling	No other specific measures identified.

Laboratory activities	No other specific measures identified.
Bulk transfersDedicated facility	No other specific measures identified.
Mixing operations (open systems)	No other specific measures identified.
ManualTransfer from/pouring from containersNon-dedicated facility	No other specific measures identified.
Drum/batch transfersDedicated facility	No other specific measures identified.
Production or preparation or articles by tabletting, compression, extrusion or pelletisation	No other specific measures identified.
Drum and small package filling	No other specific measures identified.
Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.
Storage.	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	8,5E+05
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3,0E+04
Maximum daily site tonnage (kg/day):	1,0E+05
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from process (initial release prior to RMM):	2,5E-03
Release fraction to wastewater from process (initial release prior to RMM):	5,0E-06
Release fraction to soil from process (initial release prior to RMM):	0,0001
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	
Risk from environmental exposure is driven by freshwater sediment.	

Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	69,5
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0,0
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	5,7E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

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

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010378	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use as binders and release agents- Professional
Use Descriptor	**Sector of Use**: SU 22 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC10, PROC11, PROC14 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.10b.v1
Scope of process	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
Material transfers(closed systems)	No other specific measures identified.
Drum/batch transfersDedicated facility	No other specific measures identified.
Drum/batch transfersNon-dedicated facility	Avoid carrying out activities involving exposure for more than 1 hour.
Mixing operations (closed systems)	No other specific measures identified.
Mixing operations (open systems)	No other specific measures identified.
Mold forming	No other specific measures identified.
Casting operations(open	Provide extraction ventilation at points where emissions

systems)elevated temperature	occur.
SprayingMachine	Carry out in a vented booth or extracted enclosure. Avoid carrying out activities involving exposure for more than 4 hours
SprayingManual	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour. , or: Wear a respirator conforming to EN140 with Type A filter or better.
ManualRolling, Brushing	No other specific measures identified.
Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.
Storage.	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	2,7E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1,3E+00
Maximum daily site tonnage (kg/day):	3,7E+00
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	0,95
Release fraction to wastewater from wide dispersive use:	0,025
Release fraction to soil from wide dispersive use (regional only):	0,025
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	
Risk from environmental exposure is driven by freshwater sediment.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	65,5
If discharging to domestic sewage treatment plant, provide the	0

required onsite wastewater removal efficiency of (%)	
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	2,4E+01
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone

or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010379	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in Agrochemicals uses- Professional
Use Descriptor	**Sector of Use**: SU 22 **Process Categories**: PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.11a.v1
Scope of process	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
Transfer from/pouring from containersDedicated facility	No other specific measures identified.
Mixing operations (open systems)	No other specific measures identified.
Spraying/ fogging by manual application	Wear a respirator conforming to EN140 with Type A filter or better.
Spraying/ fogging by machine application	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.
Ad hoc manual application via trigger sprays, dipping, etc.	No other specific measures identified.
Equipment cleaning and	Drain down system prior to equipment opening or

maintenance	maintenance.
Storage.	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	7,5E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1,5E+01
Maximum daily site tonnage (kg/day):	4,1E+01
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	0,9
Release fraction to wastewater from wide dispersive use:	0,01
Release fraction to soil from wide dispersive use (regional only):	0,09
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	
Risk from environmental exposure is driven by freshwater sediment.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	68,7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	2,4E+02
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or regional regulations.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010388	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Lubricant- Industrial
Use Descriptor	**Sector of Use**: SU 3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18 **Environmental Release Categories**: ERC4, ERC7, ESVOC SpERC 4.6a.v1
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
General exposures (closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfersDedicated facility	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Non-dedicated facility	No other specific measures identified.
Initial factory fill of equipment	No other specific measures identified.

Operation and lubrication of high energy open equipment	Provide extraction ventilation at points where emissions occur.
ManualRolling, Brushing	No other specific measures identified.
Treatment by dipping and pouring	No other specific measures identified.
Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Maintenance (of larger plant items) and machine set upDedicated facilityelevated temperature	No other specific measures identified.
Maintenance of small itemsNon-dedicated facility	No other specific measures identified.
Remanufacture of reject articles	No other specific measures identified.
Storage.	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	3,1E+05
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1,0E+02
Maximum daily site tonnage (kg/day):	5,0E+03
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	5,0E-04
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-06
Release fraction to soil from process (initial release prior to RMM):	0,001
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	
Risk from environmental exposure is driven by freshwater sediment.	
Treat air emission to provide a typical removal efficiency of (%)	70
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	64,5
If discharging to domestic sewage treatment plant, provide the	0,0

required onsite wastewater removal efficiency of (%)	
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	3,3E+04
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010389	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Lubricant- ProfessionalLow Environmental Release
Use Descriptor	**Sector of Use**: SU 22 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC13, PROC17, PROC20 **Environmental Release Categories**: ERC9a, ERC9b, ESVOC SpERC 9.6b.v1
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
General exposures (closed systems)	No other specific measures identified.
Operation of equipment containing engine oils and similar.(closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfersDedicated facility	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Dedicated facility	No other specific measures identified.

Filling/ preparation of equipment from drums or containers.Non-dedicated facility	Avoid carrying out activities involving exposure for more than 1 hour.
Operation and lubrication of high energy open equipmentIndoor	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Operation and lubrication of high energy open equipmentOutdoor	Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours. Limit the substance content in the product to 25 %.
Maintenance (of larger plant items) and machine set upDedicated facilityelevated temperature	Drain down system prior to equipment opening or maintenance. Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.
Maintenance of small itemsNon-dedicated facilityelevated temperature	Drain or remove substance from equipment prior to break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Engine lubricant service	No other specific measures identified.
ManualRolling, Brushing	No other specific measures identified.
Spraying	Carry out in a vented booth or extracted enclosure. , or: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Avoid carrying out activities involving exposure for more than 1 hour. , or: Wear a respirator conforming to EN140 with Type A filter or better.
Treatment by dipping and pouring	No other specific measures identified.
Storage.	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	1,1E+05
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	5,3E+01
Maximum daily site tonnage (kg/day):	365
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	0,01
Release fraction to wastewater from wide dispersive use:	0,01
Release fraction to soil from wide dispersive use (regional only):	0,01
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	
Risk from environmental exposure is driven by freshwater sediment.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	76,1
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0,0
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	6,5E+02
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010390	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Lubricant- ProfessionalHigh Environmental Release
Use Descriptor	**Sector of Use**: SU 22 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC13, PROC17, PROC20 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.6c.v1
Scope of process	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
General exposures (closed systems)	No other specific measures identified.
Operation of equipment containing engine oils and similar.(closed systems)	No other specific measures identified.
General exposures (open systems)	No other specific measures identified.
Bulk transfersDedicated facility	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Dedicated facility	No other specific measures identified.

Filling/ preparation of equipment from drums or containers.Non-dedicated facility	Avoid carrying out activities involving exposure for more than 1 hour.
Operation and lubrication of high energy open equipmentIndoor	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Operation and lubrication of high energy open equipmentOutdoor	Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours. Limit the substance content in the product to 25 %.
Maintenance (of larger plant items) and machine set upDedicated facilityelevated temperature	Drain down system prior to equipment opening or maintenance. Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.
Maintenance of small itemsNon-dedicated facilityelevated temperature	Drain or remove substance from equipment prior to break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Engine lubricant service	No other specific measures identified.
ManualRolling, Brushing	No other specific measures identified.
Spraying	Carry out in a vented booth or extracted enclosure. , or: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Avoid carrying out activities involving exposure for more than 1 hour. , or: Wear a respirator conforming to EN140 with Type A filter or better.
Treatment by dipping and pouring	No other specific measures identified.
Storage.	Store substance within a closed system.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	8,1E+04
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	4,0E+01
Maximum daily site tonnage (kg/day):	1,1E+02
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	5,0E-03
Release fraction to wastewater from wide dispersive use:	0,05
Release fraction to soil from wide dispersive use (regional only):	0,05
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	
Risk from environmental exposure is driven by freshwater sediment.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,6
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0,0
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	2,6E+02
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000010393	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in laboratories- Industrial
Use Descriptor	**Sector of Use**: SU 3 **Process Categories**: PROC10, PROC15 **Environmental Release Categories**: ERC4,
Scope of process	Use of the substance within laboratory settings, including material transfers and equipment cleaning.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa with potential for aerosol generation.
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance
Laboratory activities	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	1,2E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	2,0E+00
Maximum daily site tonnage (kg/day):	1,0E+02
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	20
Environmental factors not influenced by risk management	

Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	0,025
Release fraction to wastewater from process (initial release prior to RMM):	0,02
Release fraction to soil from process (initial release prior to RMM):	0,0001
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	
Risk from environmental exposure is driven by freshwater sediment.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	78,7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0,0
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 (%)	94,7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	4,0E+02
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Exposure Scenario - Consumer

300000010380	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in Agrochemicals uses - Consumer
Use Descriptor	**Sector of Use**: SU 21 **Product Categories**: PC12, PC27 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.11b.v1
Scope of process	Covers the consumer use in agrochemicals in liquid and solid forms.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

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

Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	2,0E+03
Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	4,1E+00
Maximum daily site tonnage (kg/day):	1,1E+01
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	0,9
Release fraction to wastewater from wide dispersive use:	0,01
Release fraction to soil from wide dispersive use (regional only):	0,09
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	7,2E+01
Assumed domestic sewage treatment plant flow (m3/d)	2.000

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	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Not applicable.	

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.

Exposure Scenario - Consumer

300000010387	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use as a fuel - Consumer
Use Descriptor	**Sector of Use**: SU 21 **Product Categories**: PC13 **Environmental Release Categories**: ERC9a, ERC9b, ESVOC SpERC 9.12c.v1
Scope of process	Covers consumer uses in liquid fuels.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

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

Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	1,0E+04
Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	5,0E+00
Maximum daily site tonnage (kg/day):	1,4E+01
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	1,0E-04
Release fraction to wastewater from wide dispersive use:	1,0E-05
Release fraction to soil from wide dispersive use (regional only):	1,0E-05
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	9,1E+01
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	

Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or regional regulations.
Conditions and measures related to external recovery of waste
This substance is consumed during use and no waste of substance is generated.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Not applicable.	

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.

Exposure Scenario - Consumer

300000010391	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Lubricants - Consumer Low Environmental Release
Use Descriptor	**Sector of Use**: SU 21 **Product Categories**: PC1, PC24, PC31 **Environmental Release Categories**: ERC9a, ERC9b, ESVOC SpERC 9.6d.v1
Scope of process	Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

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

Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	1,1E+05
Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	5,7E+01
Maximum daily site tonnage (kg/day):	1,6E+02
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	0,01
Release fraction to wastewater from wide dispersive use:	0,01
Release fraction to soil from wide dispersive use (regional only):	0,01
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following	6,9E+02

total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000

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

Risk Management Measures are based on qualitative risk characterisation.

Section 3.2 -Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

Section 4.1 - Health

Not applicable.

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.

Exposure Scenario - Consumer

300000010392	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Lubricants - Consumer High Environmental Release
Use Descriptor	**Sector of Use**: SU 21 **Product Categories**: PC1, PC24, PC31 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.6e.v1
Scope of process	Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

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

Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
General measures (Aspiration)	Do not ingest. If swallowed, then seek immediate medical assistance

Section 2.2	**Control of Environmental Exposure**
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	2,9E+04
Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	1,4E+01
Maximum daily site tonnage (kg/day):	3,9E+01
Frequency and Duration of Use	
Continuous release.	
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	
Release fraction to air from wide dispersive use (regional only):	5,0E-03
Release fraction to wastewater from wide dispersive use:	0,05
Release fraction to soil from wide dispersive use (regional only):	0,05
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94,7
Maximum allowable site tonnage (MSafe) based on release following	1,6E+02

total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2.000

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

Risk Management Measures are based on qualitative risk characterisation.

Section 3.2 -Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

Section 4.1 - Health

Not applicable.

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.