SAFETY DATA SHEET
NEXBASE™ 3030

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

1.1. Product identifier

Product name: NEXBASE™ 3030
Chemical name: Lubricating oils (petroleum), C20-C50, hydrotreated neutral oilbased
Product number: ID 12502
Internal identification: 192501
REACH registration number: 01-2119474889-13-0000

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

Identified uses: Manufacture of substance (ES01), Distribution of substance (ES01a), Formulation & (re)packing of substances and mixtures (ES02), Uses in coatings (ES03a-c), Use in cleaning agents (ES04a-c), Use in oil and gas field drilling and production operations (ES05a-b), Metal working fluids/rolling oils (ES07a-b), Use as binders and release agents (ES10a-b), Use in agrochemicals (ES11a-b), Road and construction applications (ES15), Rubber production and processing (ES19), Polymer processing (ES21a-b), Lubricants (ES6a-e), Laboratory chemical use (ES17a-b), Mining chemicals (ES23), Water treatment chemicals (ES22a-b), Explosives manufacture & use (ES18b), Functional fluids (ES13a-c).

1.3. Details of the supplier of the safety data sheet

Supplier: Neste (Suisse) S.A.
16 Chemin des Coquelicots, 1214 Vernier, SWITZERLAND
Tel. +41 22 561 8000
SDS@neste.com (chemical safety)

1.4. Emergency telephone number

National emergency telephone: +358-9-471 977, +358-9-4711, Poison Information Centre number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards: Not Classified
Health hazards: Asp. Tox. 1 - H304
Environmental hazards: Not Classified

2.2. Label elements

Pictogram: 

1/108
**NEXBASE™ 3030**

**Signal word** Danger

**Hazard statements** H304 May be fatal if swallowed and enters airways.

**Precautionary statements**
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P331 Do NOT induce vomiting.
- P501 Dispose of contents/ container in accordance with local regulations.

**Contains** Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

**2.3. Other hazards**
- Oil mist: May cause eye and respiratory system irritation.
- Repeated exposure may cause skin dryness or cracking.
- Risk of soil and ground water contamination.

**SECTION 3: Composition/information on ingredients**

<table>
<thead>
<tr>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
<th>100 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 72623-87-1</td>
<td>EC number: 276-738-4</td>
</tr>
</tbody>
</table>

**Classification**
- Asp. Tox. 1 - H304

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**Other information** A petroleum product, DMSO < 3% (IP 346).

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**Inhalation**
- Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature. If spray/mist has been inhaled, proceed as follows. Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist.

**Ingestion**
- Do not induce vomiting. Get medical attention.

**Skin contact**
- Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing. Contact with hot product can cause serious thermal burns.

**Eye contact**
- Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists after washing.

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

**General information**
- Oil mist: May cause eye and respiratory system irritation. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

**4.3. Indication of any immediate medical attention and special treatment needed**

**Notes for the doctor**
- Treat symptomatically.

**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media** Water spray, foam, dry powder or carbon dioxide.
NEXBASE™ 3030

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture
Specific hazards Not known.
Hazardous combustion products Carbon dioxide (CO2). Carbon monoxide (CO).

5.3. Advice for firefighters
Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Personal precautions Avoid breathing mist. Wear adequate protective equipment at all operations.
For emergency responders Prevent unauthorized access. Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharge.

6.2. Environmental precautions
Environmental precautions Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with sand, earth or other suitable non-combustible material. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up Immediately start clean-up of the liquid and contaminated soil. Large spills should be collected mechanically (remove by pumping) for disposal. Small Spillages: Absorb spillage with sand or other inert absorbent.

6.4. Reference to other sections
Reference to other sections For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Usage precautions Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. Use only in well-ventilated areas. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Do not eat, drink or smoke when using this product. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site.

7.2. Conditions for safe storage, including any incompatibilities
Storage precautions Store in accordance with local regulations. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from light. Suitable container materials: Stainless steel.

7.3. Specific end use(s)
Specific end use(s) Not known.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters
NEXBASE™ 3030

Occupational exposure limits
Oil mist: 5 mg/m³ (8h) HTP 2016/FIN.
5 mg/m³, TWA PEL (OSHA) 5 mg/m³, TLV-TWA (ACGIH) 10 mg/m³, TLV-STEL (ACGIH).

PNEC Not available.

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based (CAS: 72623-87-1)

DNEL Workers - Inhalation; Long term local effects: 5.4 mg/m³, (8h), Aerosol
Consumer - Inhalation; Long term local effects: 1.2 mg/m³, (24h), Aerosol
Available hazard data do not enable the derivation of a DNEL for dermal irritant
effects.
Available hazard data do not support the need for a DNEL to be established for
other health effects.

8.2. Exposure controls
Appropriate engineering controls Use only in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed.

Eye/face protection Tight-fitting safety glasses.

Hand protection Wear protective gloves. It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC). Nitrile rubber. Change protective gloves regularly. Protective gloves according to standards EN 420 and EN 374.

Other skin and body protection Protective clothing when needed. Wear anti-static protective clothing if there is a risk of ignition from static electricity.

Respiratory protection Oil mist: Combination filter, type A2/P2. Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirators according to standards EN 140 and EN 141.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance Liquid.
Colour Colourless. Clear.
Odour Almost odourless.
Odour threshold -
pH -
Melting point Pour point ≤ -24°C (ASTM D-97)
Initial boiling point and range 270-430°C
Flash point > 180°C (ASTM D-92).
Upper/lower flammability or explosive limits -
Vapour pressure < 0.1 hPa @ 20°C
Vapour density -
Relative density 0.82-0.84 @ 15°C (ASTM D-4052).
### NEXBASE™ 3030

**Solubility(ies)**

Insoluble in water.

**Partition coefficient**

log Kow: > 6

**Auto-ignition temperature**

-  

**Decomposition Temperature**

-  

**Viscosity**

Kinematic viscosity typical value 12 mm²/s @ 40°C (ASTM D-445).

**Explosive properties**

Not considered to be explosive.

**Oxidising properties**

Does not meet the criteria for classification as oxidising.

#### 9.2. Other information

Other information

Melting/pour point: ≤ -24°C Dynamic viscosity ~ 22 mPa s @ +20°C Dynamic viscosity ~ 50 mPa s @ + 1°C

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Reactivity

There are no known reactivity hazards associated with this product.

#### 10.2. Chemical stability

Stability

Stable at normal ambient temperatures and when used as recommended.

#### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions

No potentially hazardous reactions known.

#### 10.4. Conditions to avoid

Conditions to avoid

Keep away from heat, sparks and open flame.

#### 10.5. Incompatible materials

Materials to avoid

Strong acids. Oxidising agents.

#### 10.6. Hazardous decomposition products

Hazardous decomposition products

Does not decompose when used and stored as recommended.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

**Toxicological effects**

Based on available data the classification criteria are not met.

**Skin corrosion/irritation**

Based on available data the classification criteria are not met. (OECD 404), Repeated exposure may cause skin dryness or cracking.

**Serious eye damage/irritation**

Based on available data the classification criteria are not met. (OECD 405) Oil mist: May cause eye and respiratory system irritation.

**Skin sensitisation**

Based on available data the classification criteria are not met. (OECD 406)

**Germ cell mutagenicity**

Based on available data the classification criteria are not met. (OECD 471, 473, 476)
NEXBASE™ 3030

Genotoxicity - in vivo

Based on available data the classification criteria are not met. (OECD 474)

Carcinogenicity

Carcinogenicity

Based on available data the classification criteria are not met. (OECD 451, 453)

IARC carcinogenicity

Not listed.

NTP carcinogenicity

Not listed.

Reproductive toxicity

Reproductive toxicity - fertility

Based on available data the classification criteria are not met. (OECD 421)

Reproductive toxicity - development

Based on available data the classification criteria are not met. (OECD 414)

Specific target organ toxicity - single exposure

STOT - single exposure

Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure

Based on available data the classification criteria are not met. (OECD 408, 410, 411, 412, 453)

Aspiration hazard

Aspiration hazard if swallowed. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

Acute toxicity - oral

Notes (oral LD₅₀)

LD₅₀ > 5000 mg/kg, Oral, Rat (OECD 401)

Acute toxicity - dermal

Notes (dermal LD₅₀)

LD₅₀ > 2000 mg/kg, Dermal, Rabbit (OECD 402)

Acute toxicity - inhalation

Notes (inhalation LC₅₀)

LC₅₀ > 5.53 mg/l, Inhalation, Rat (OECD 403)

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity

Based on available data the classification criteria are not met.

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

Acute toxicity - fish

LL₅₀, 96 hours: > 100 mg/l,
NOEL, 96 hours: ≥ 100 mg/l,
WAF (OECD 203)

Acute toxicity - aquatic invertebrates

EL₅₀, 48 hours: > 10000 mg/l, Daphnia magna
NOEL, 48 - 96 hours: ≥ 10000 mg/l,
LL₅₀, 24 - 96 hours: > 10000 mg/l,
WAF (OECD 202)

Acute toxicity - aquatic plants

NOEL, 72 hours: ≥ 100 mg/l, Pseudokirchneriella subcapitata
WAF (OECD 201)

Acute toxicity - microorganisms

NOEL, 10 minutes: > 1.93 mg/l, Micro-organisms (wastewater sludge)
(DIN 38412, DIN38409)
NEXBASE™ 3030

12.2. Persistence and degradability
 Persistence and degradability The product is slowly degradable.
 Stability (hydrolysis) No significant reaction in water.
 Biodegradation Non-rapidly degradable (OECD 301B)

12.3. Bioaccumulative potential
 Bioaccumulative potential Possibly bioaccumulative.
 Partition coefficient log Kow: > 6

12.4. Mobility in soil
 Mobility The product is insoluble in water. Mainly non-volatile. Product can penetrate soil until reaching the surface of ground water. The product contains substances which are bound to particulate matter and are retained in soil.

12.5. Results of PBT and vPvB assessment
 Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB. (Anthracene < 0.1 %)

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods
 Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Dispose of this material and its container to hazardous or special waste collection point. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Waste packaging should be collected for reuse or recycling.

SECTION 14: Transport information

14.1. UN number
 UN No. (ADR/RID) -

14.2. UN proper shipping name
 Proper shipping name (ADR/RID) -

14.3. Transport hazard class(es)
 ADR/RID class -

14.4. Packing group
 ADR/RID packing group -
NEXBASE™ 3030

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Noxious liquid, NF (5) n.o.s. (NEXBASE 3030, contains Iso- and cyclo-alkanes C12+) Ship type: 2 Cat Y According to MARPOL: "Non-solidifying substance"

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
US Federal: Not listed under CERCLA or Section 302 or Section 313 of EPCRA.

EU legislation

15.2. Chemical safety assessment
A chemical safety assessment has been carried out.

Inventories
EU - EINECS/ELINCS
Yes

Canada - DSL/NDSL
Yes
DSL

US - TSCA
Yes
To the best of our knowledge, the product components are not listed on any US national/regional regulatory lists except the TSCA inventory.

Australia - AICS
Yes

Japan - MITI
Yes

Korea - KECI
Yes

China - IECSC
Yes

Philippines – PICCS
Yes

New Zealand - NZIOC
Yes
NEXBASE™ 3030

Other Inventories of Taiwan and Switzerland.

<table>
<thead>
<tr>
<th>SECTION 16: Other information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abbreviations and acronyms used in the safety data sheet</strong></td>
<td>PEL = Permissible Exposure Limit</td>
</tr>
<tr>
<td></td>
<td>OSHA = Occupational Safety and Health Administration</td>
</tr>
<tr>
<td></td>
<td>NTP = National Toxicology Program</td>
</tr>
<tr>
<td><strong>Revision comments</strong></td>
<td>Updated, sections: 1, Exposure scenarios Supplier's information.</td>
</tr>
<tr>
<td><strong>Revision date</strong></td>
<td>17/10/2017</td>
</tr>
<tr>
<td><strong>Supersedes date</strong></td>
<td>30/05/2016</td>
</tr>
<tr>
<td><strong>SDS number</strong></td>
<td>5600</td>
</tr>
<tr>
<td><strong>Hazard statements in full</strong></td>
<td>H304 May be fatal if swallowed and enters airways.</td>
</tr>
</tbody>
</table>
Exposure scenario
Manufacture of Substance

### Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES01</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

**Main title**
Manufacture of Substance

**Process scope**
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

### Environment

**Environmental release category**
ERC1 Manufacture of substances.

**SPERC**
ESVOC SpERC 1.1.v1

**Worker**

**Process category**
- PROC1 Use in closed process, no likelihood of exposure.
- PROC2 Use in closed, continuous process with occasional controlled exposure
- PROC3 Use in closed batch process (synthesis or formulation).
- PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
- PROC15 Use as laboratory reagent.

### 2. Conditions of use affecting exposure (Industrial - Environment 1)

**Product characteristics**
Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**
- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 11 000 tonnes/year
- Fraction of Regional tonnage used locally: 1
- Annual site tonnage: 11 000 tonnes
- Maximum daily site tonnage: 37 tonnes

**Frequency and duration of use**
Continuous release.
Emission days: 300 days/year

**Other given operational conditions affecting environmental exposure**

**Emission factor - air**
Release fraction to air from process (initial release prior to RMM): 0.0001
Manufacture of Substance

**Emission factor - water**  
Release fraction to wastewater from process (initial release prior to RMM): 0.00003

**Emission factor - soil**  
Release fraction to soil from process (initial release prior to RMM): 0.0001

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilution</td>
<td>Local freshwater dilution factor: 10</td>
</tr>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

**Good practice**  
Common practices vary across sites, thus conservative process release estimates used.

Risk from environmental exposure is driven by terrestrial secondary poisoning.

**STP details**

- Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
- Removal efficiency (total): 94.7%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2 200 tonne/day
- Assumed domestic sewage treatment plant flow (m³/day): 10 000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**  
Treat air emission to provide a typical removal efficiency of 90%.

**Water**  
No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

**Soil**  
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**  
During manufacturing no waste of the substance is generated.

**Conditions and measures related to external recovery of waste**

**Recovery method**  
During manufacturing no waste of the substance is generated.

2. **Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. **Exposure estimation (Environment 1)**

**Assessment method**  
Used Petrorisk model. (Hydrocarbon Block Method)

- Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017
- Risk-driving RCR - water compartment driven RCR(water) ≤ 0.013

4. **Guidance to check compliance with the exposure scenario (Environment 1)**
Manufacture of Substance

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
# Exposure scenario
## Distribution of Substance

### Identification

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<td>ES01a</td>
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### 1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Distribution of Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC5 Industrial use resulting in inclusion into or onto a matrix.</td>
</tr>
<tr>
<td></td>
<td>ERC6a Industrial use resulting in manufacture of another substance (use of intermediates).</td>
</tr>
<tr>
<td></td>
<td>ERC6b Industrial use of reactive processing aids.</td>
</tr>
<tr>
<td></td>
<td>ERC6c Industrial use of monomers for manufacture of thermoplastics.</td>
</tr>
<tr>
<td></td>
<td>ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers.</td>
</tr>
<tr>
<td></td>
<td>ERC7 Industrial use of substances in closed systems.</td>
</tr>
</tbody>
</table>

| SPERC | ESVOC SpERC 1.1b.v1 |

### Worker

<table>
<thead>
<tr>
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</tr>
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<tr>
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<td>PROC3 Use in closed batch process (synthesis or formulation).</td>
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<td>PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.</td>
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<td>PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.</td>
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<tr>
<td></td>
<td>PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.</td>
</tr>
<tr>
<td></td>
<td>PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).</td>
</tr>
<tr>
<td></td>
<td>PROC15 Use as laboratory reagent.</td>
</tr>
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### 2. Conditions of use affecting exposure (Industrial - Environment 1)

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<td>Amounts used</td>
<td>--------------------------------------------------------</td>
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</table>
Distribution of Substance

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 24 000 tonnes/year
Fraction of Regional tonnage used locally: 0.002
Annual site tonnage: 48 tonnes
Maximum daily site tonnage: 2.4 tonnes

Frequency and duration of use
Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (initial release prior to RMM): 0.0001

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 0.000001

Emission factor - soil
Release fraction to soil from process (initial release prior to RMM): 0.00001

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by terrestrial secondary poisoning.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater
treatment removal: 140 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Treat air emission to provide a typical removal efficiency of 90%.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or
reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national
regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national
regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures
Distribution of Substance

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.004

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Formulation & (Re)packing of Substances and Mixtures

### Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES02</td>
</tr>
</tbody>
</table>

### Main title

Formulation & (Re)packing of Substances and Mixtures

### Process scope

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.

### Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC2 Formulation of preparations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPERC</td>
<td>ESVOC SpERC 2.2.v1</td>
</tr>
</tbody>
</table>

### Worker

<table>
<thead>
<tr>
<th>Process category</th>
<th>PROC1 Use in closed process, no likelihood of exposure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC2 Use in closed, continuous process with occasional controlled exposure</td>
<td></td>
</tr>
<tr>
<td>PROC3 Use in closed batch process (synthesis or formulation).</td>
<td></td>
</tr>
<tr>
<td>PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.</td>
<td></td>
</tr>
<tr>
<td>PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).</td>
<td></td>
</tr>
<tr>
<td>PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.</td>
<td></td>
</tr>
<tr>
<td>PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.</td>
<td></td>
</tr>
<tr>
<td>PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).</td>
<td></td>
</tr>
<tr>
<td>PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation.</td>
<td></td>
</tr>
<tr>
<td>PROC15 Use as laboratory reagent.</td>
<td></td>
</tr>
</tbody>
</table>

### 2. Conditions of use affecting exposure (Industrial - Environment 1)

#### Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

#### Amounts used

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 24 000 tonnes/year
- Fraction of Regional tonnage used locally: 1
- Annual site tonnage: 24 000 tonnes
- Maximum daily site tonnage: 80 tonnes

#### Frequency and duration of use

16/108
Formulation & (Re)packing of Substances and Mixtures

Continuous release.
Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): 0.0025

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 0.00002

Emission factor - soil
Release fraction to soil from process (initial release prior to RMM): 0.0001

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1 200 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Treat air emission to provide a typical removal efficiency of 0%.

Water
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 23.4 If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Additional advice
Do not ingest. If swallowed, then seek immediate medical assistance.
Formulation & (Re)packing of Substances and Mixtures

3. Exposure estimation (Environment 1)

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven $\text{RCR(air)} \leq 0.02$

Risk-driving RCR - water compartment driven $\text{RCR(water)} \leq 0.068$

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Uses in Coatings - Industrial

1. Title of exposure scenario

Main title
Uses in Coatings - Industrial

Process scope
Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 10 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 10 tonnes
Maximum daily site tonnage: 0.5 tonnes

Frequency and duration of use
Uses in Coatings - Industrial

Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (initial release prior to RMM): 0.98

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 0.00007

Emission factor - soil
Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by terrestrial secondary poisoning.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Treat air emission to provide a typical removal efficiency of 90%.

Water
No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Uses in Coatings - Industrial

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0053

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Uses in Coatings - Professional

Identification

Product name
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

CAS number
72623-87-1

Version number
2017

Es reference
ES03b

1. Title of exposure scenario

Main title
Uses in Coatings - Professional

Process scope
Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Environment

Environmental release category
ERC8a Wide dispersive indoor use of processing aids in open systems.
ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC
ESVOC SpERC 8.3b.v1

Worker

Process category
PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC10 Roller application or brushing of adhesive and other coating.
PROC11 Spraying outside industrial settings and/or applications.
PROC13 Treatment of articles by dipping and pouring.
PROC15 Use as laboratory reagent.
PROC19 Hand-mixing with intimate contact and only PPE available.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 10 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.005 tonnes
Maximum daily site tonnage: 14 g

Frequency and duration of use
Uses in Coatings - Professional

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air  
Release fraction to air from wide dispersive use (regional only): 0.98

Emission factor - water  
Release fraction to wastewater from wide dispersive use: 0.01

Emission factor - soil  
Release fraction to soil from wide dispersive use (regional only): 0.01

Environmental factors not influenced by risk management measures

Dilution  
Local freshwater dilution factor: 10  
Local marine water dilution factor: 100

Risk management measures

Good practice  
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

STP details  
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%  
Removal efficiency (total): 94.7%  
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 3 kg/day  
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air  
Not determined.

Water  
No wastewater treatment required.

Soil  
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment  
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method  
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method  
Used Petrorisk model. (Hydrocarbon Block Method)
Uses in Coatings - Professional

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Uses in Coatings - Consumer

Identification

Product name  Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based  
CAS number  72623-87-1  
Version number  2017  
Es reference  ES03c

1. Title of exposure scenario

Main title  Uses in Coatings - Consumer  
Process scope  Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.  
Product category  PC1 Adhesives, sealants.  
PC4 Anti-freeze and de-icing products.  
PC8a Excipient only  
PC9a Coatings and paints, thinners, paint removers.  
PC9b Fillers, putties, plasters, modelling clay.  
PC9c Finger paints.  
PC15 Non-metal-surface treatment products.  
PC18 Ink and toners.  
PC23 Leather tanning, dye, finishing, impregnation and care products.  
PC24 Lubricants, greases and release products.  
PC31 Polishes and wax blends.  
PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids.

Environment

Environmental release category  ERC8c Wide dispersive indoor use of processing aids in open systems.  
ERC8d Wide dispersive outdoor use of processing aids in open systems.  
SPERC  ESVOC SpERC 8.3c.v1

2. Conditions of use affecting exposure (Non-Industrial - Environment 1)

Product characteristics  Substance is complex UVCB. Predominantly hydrophobic.

Amounts used  
Fraction of EU tonnage used in region: 0.1  
Regional use tonnage: 10 tonnes/year  
Fraction of Regional tonnage used locally: 0.0005  
Annual site tonnage: 0.005 tonnes  
Maximum daily site tonnage: 14 g

Frequency and duration of use  
Continuous release.  
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure
Uses in Coatings - Consumer

**Emission factor - air**
Release fraction to air from wide dispersive use (regional only): 0.99

**Emission factor - water**
Release fraction to wastewater from wide dispersive use: 0.01

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.005

**Environmental factors not influenced by risk management measures**

**Dilution**
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

**Risk management measures**

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 3 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
External recovery and recycling of waste should comply with applicable local and/or national regulations.

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**2. Conditions of use affecting exposure (Non-industrial - Health 1)**

Other given operational conditions affecting Non-industrial exposure

**Consumer information**
Do not ingest. If swallowed, then seek immediate medical assistance.
No additional risk management measures required.

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**3. Exposure estimation (Environment 1)**

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039

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**4. Guidance to check compliance with the exposure scenario (Environment 1)**

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.

---

**3. Exposure estimation (Health 1)**

Qualitative approach used to conclude safe use.
# Exposure scenario

## Use in Cleaning Agents - Industrial

### Identification

<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAS number</strong></td>
<td>72623-87-1</td>
</tr>
<tr>
<td><strong>Version number</strong></td>
<td>2017</td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
<td>ES04a</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

- **Main title**: Use in Cleaning Agents - Industrial
- **Process scope**: Covers the use as a component of cleaning products, including transfer from storage, pouring/unloading from drums or containers and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

### Environment

- **Environmental release category**: ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
- **SPERC**: ESVOC SpERC 4.4a.v1

### Worker

- **Process category**: PROC1 Use in closed process, no likelihood of exposure.
- PROC2 Use in closed, continuous process with occasional controlled exposure
- PROC3 Use in closed batch process (synthesis or formulation).
- PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
- PROC7 Spraying in industrial settings and applications.
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
- PROC10 Roller application or brushing of adhesive and other coating.
- PROC13 Treatment of articles by dipping and pouring.

### 2. Conditions of use affecting exposure (Industrial - Environment 1)

- **Product characteristics**: Substance is complex UVCB. Predominantly hydrophobic.

- **Amounts used**:
  - Fraction of EU tonnage used in region: 0.1
  - Regional use tonnage: 10 tonnes/year
  - Fraction of Regional tonnage used locally: 1
  - Annual site tonnage: 1 tonnes
  - Maximum daily site tonnage: 50 kg

- **Frequency and duration of use**:
  - Continuous release.
  - Emission days: 20 days/year
Use in Cleaning Agents - Industrial

Other given operational conditions affecting environmental exposure

**Emission factor - air**
Release fraction to air from process (initial release prior to RMM): 1.0

**Emission factor - water**
Release fraction to wastewater from process (initial release prior to RMM): 3.0E-07

**Emission factor - soil**
Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

**Dilution**
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

**Good practice**
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by terrestrial secondary poisoning.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.9 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

**Air**
Treat air emission to provide a typical removal efficiency of 70%.

**Water**
No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

**Soil**
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

**Waste treatment**
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

**Recovery method**
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

**Risk management measures**
Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039
Use in Cleaning Agents - Industrial

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario

Use in Cleaning Agents - Professional

Identification

Product name: Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number: 72623-87-1
Version number: 2017
Es reference: ES04b

1. Title of exposure scenario

Main title: Use in Cleaning Agents - Professional
Process scope: Covers the use as a component of cleaning products, including pouring/unloading from drums or containers and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Environment

Environmental release category: ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC: ESVOC SpERC 8.4b.v1

Worker

Process category: PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC10 Roller application or brushing of adhesive and other coating.
PROC11 Spraying outside industrial settings and/or applications.
PROC13 Treatment of articles by dipping and pouring.
PROC19 Hand-mixing with intimate contact and only PPE available.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 1 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.0005 tonnes
Maximum daily site tonnage: 1.4 g

Frequency and duration of use

Continuous release.
Emission days: 365 days/year
Use in Cleaning Agents - Professional

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from wide dispersive use (regional only): 0.02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from wide dispersive use: 1.0E-06</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from wide dispersive use (regional only): 0</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

Good practice: Common practices vary across sites, thus conservative process release estimates used.

Technical measures: Risk from environmental exposure is driven by freshwater sediment.

STP details

- Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
- Removal efficiency (total): 94.7%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.3 kg/day
- Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air: Not determined.

Water: No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil: Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method: External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method: Used Petrorisk model. (Hydrocarbon Block Method)

<table>
<thead>
<tr>
<th>Risk-driving RCR - air compartment driven</th>
<th>RCR(air) ≤ 0.0022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-driving RCR - water compartment driven</td>
<td>RCR(water) ≤ 0.0039</td>
</tr>
</tbody>
</table>
Use in Cleaning Agents - Professional

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Cleaning Agents - Consumer

Identification

Product name  Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number  72623-87-1
Version number  2017
Es reference  ES04c

1. Title of exposure scenario

Main title  Use in Cleaning Agents - Consumer
Process scope  Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.
Product category  PC3 Air care products.  
PC4 Anti-freeze and de-icing products.  
PC8a Excipient only  
PC9a Coatings and paints, thinners, paint removers.  
PC24 Lubricants, greases and release products.  
PC35 Washing and cleaning products (including solvent-based products).  
PC38 Welding and soldering products, flux products.

Environment

Environmental release category  ERC8a Wide dispersive indoor use of processing aids in open systems.  
ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC  ESVOC SpERC 8.4c.v1

2. Conditions of use affecting exposure (Non-Industrial - Environment 1)

Product characteristics  Substance is complex UVCB. Predominantly hydrophobic.

Amounts used  Fraction of EU tonnage used in region: 0.1  
Regional use tonnage: 1 tonnes/year  
Fraction of Regional tonnage used locally:  0.0005  
Annual site tonnage: 0.0005 tonnes  
Maximum daily site tonnage: 1.4 g

Frequency and duration of use  Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air  Release fraction to air from wide dispersive use (regional only): 0.95
Emission factor - water  Release fraction to wastewater from wide dispersive use: 0.025
Emission factor - soil  Release fraction to soil from wide dispersive use (regional only): 0.025

Environmental factors not influenced by risk management measures
Use in Cleaning Agents - Consumer

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.3 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Non-Industrial - Health 1)

Other given operational conditions affecting Non-industrial exposure

Consumer information
Do not ingest. If swallowed, then seek immediate medical assistance.
No additional risk management measures required.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039

4. Guidance to check compliance with the exposure scenario (Environment 1)

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.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
### Exposure scenario

**Use in Oil and Gas Field Drilling and Production Operations - Industrial**

#### Identification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</td>
</tr>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES05a</td>
</tr>
</tbody>
</table>

#### 1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main title</td>
<td>Use in Oil and Gas Field Drilling and Production Operations - Industrial</td>
</tr>
<tr>
<td>Process scope</td>
<td>Offshore and onshore oil field well drilling (including drilling muds use and well cleaning) and hydraulic fracturing operations; including material transfers, on-site formulation of drilling/fracturing fluid, well head/well bore operations, shaker room activities and related maintenance.</td>
</tr>
</tbody>
</table>

#### Environment

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental release category</td>
<td>ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.</td>
</tr>
<tr>
<td>SPERC</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

#### Worker

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process category</td>
<td>PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.</td>
</tr>
</tbody>
</table>

#### 2. Conditions of use affecting exposure (Industrial - Environment 1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td>Substance is complex UVCB. Predominantly hydrophobic.</td>
</tr>
<tr>
<td>Amounts used</td>
<td>Fraction of EU tonnage used in region: 1 \ Regional use tonnage: 100 tonnes/year Fraction of Regional tonnage used locally: N/A Annual site tonnage: N/A tonnes Maximum daily site tonnage: N/A</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td>Emission days: N/A</td>
</tr>
<tr>
<td>Other given operational conditions affecting environmental exposure</td>
<td>Emission factor - air Release fraction to air from process (initial release prior to RMM): N/A Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): N/A</td>
</tr>
</tbody>
</table>
Use in Oil and Gas Field Drilling and Production Operations - Industrial

Environmental factors not influenced by risk management measures

Dilution
- Local freshwater dilution factor: N/A
- Local marine water dilution factor: N/A

Risk management measures

Technical measures
- Prevent environmental discharge consistent with regulatory requirements.

STP details
- Not determined.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
- Not determined.

Water
- Not determined.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
- External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
- External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
- Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Environment 1)


3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Oil and Gas Field Drilling and Production Operations - Professional

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES05b</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

| Main title                           | Use in Oil and Gas Field Drilling and Production Operations - Professional |
| Process scope                        | Offshore and onshore oil field well drilling (including drilling muds use and well cleaning) and hydraulic fracturing operations; including material transfers, on-site formulation of drilling/fracturing fluid, well head/well bore operations, shaker room activities and related maintenance. |

Environment

| Environmental release category       | ERC8d Wide dispersive outdoor use of processing aids in open systems. |
| SPERC                               | Not determined.                                                     |

Worker

| Process category            | PROC1 Use in closed process, no likelihood of exposure. |
|                            | PROC2 Use in closed, continuous process with occasional controlled exposure |
|                            | PROC3 Use in closed batch process (synthesis or formulation). |
|                            | PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. |
|                            | PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. |
|                            | PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. |

2. Conditions of use affecting exposure (Industrial - Environment 1)

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Substance is complex UVCB. Predominantly hydrophobic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amounts used</td>
<td>Fraction of EU tonnage used in region: 1</td>
</tr>
<tr>
<td></td>
<td>Regional use tonnage: 100 tonnes/year</td>
</tr>
<tr>
<td></td>
<td>Fraction of Regional tonnage used locally: N/A</td>
</tr>
<tr>
<td></td>
<td>Annual site tonnage: N/A tonnes</td>
</tr>
<tr>
<td></td>
<td>Maximum daily site tonnage: N/A</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td>Emission days: N/A</td>
</tr>
<tr>
<td>Other given operational conditions affecting environmental exposure</td>
<td>Emission factor - air Release fraction to air from wide dispersive use (regional only): N/A</td>
</tr>
<tr>
<td></td>
<td>Emission factor - water Release fraction to wastewater from wide dispersive use: N/A</td>
</tr>
</tbody>
</table>
Use in Oil and Gas Field Drilling and Production Operations - Professional

Environmental factors not influenced by risk management measures

Dilution
- Local freshwater dilution factor: N/A
- Local marine water dilution factor: N/A

Risk management measures

Technical measures
- Prevent environmental discharge consistent with regulatory requirements.

STP details
- Not determined.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
- Not determined.

Water
- Not determined.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
- External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
- External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
- Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Environment 1)


3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario

Use in Metal Working Fluids/Rolling Oils - Industrial

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>ES reference</td>
<td>ES07a</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

Main title Use in Metal Working Fluids/Rolling Oils - Industrial

Process scope Covers the use in formulated MWFs/rolling oils, including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

Environment

Environmental release category ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.

SPERC ESVOC SpERC 4.7a.v1

Worker

Process category

PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC7 Spraying in industrial settings and applications.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
PROC10 Roller application or brushing of adhesive and other coating.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions and in partly open process.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 100 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 100 tonnes
Maximum daily site tonnage: 5.0 tonnes
Use in Metal Working Fluids/Rolling Oils - Industrial

**Frequency and duration of use**
- Continuous release.
- Emission days: 20 days/year

**Other given operational conditions affecting environmental exposure**

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (initial release prior to RMM): 0.02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 3.0E-06</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 0</td>
</tr>
</tbody>
</table>

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local freshwater dilution factor: 10</td>
</tr>
<tr>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

**Good practice**
- Common practices vary across sites, thus conservative process release estimates used.
- Risk from environmental exposure is driven by terrestrial secondary poisoning.

**STP details**
- Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
- Removal efficiency (total): 94.7%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 290 tonne/day
- Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**
- Treat air emission to provide a typical removal efficiency of 70%.

**Water**
- No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

**Soil**
- Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
- External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
- External recovery and recycling of waste should comply with applicable local and/or national regulations.

---

**2. Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Additional advice**
- Do not ingest. If swallowed, then seek immediate medical assistance.

---

**3. Exposure estimation (Environment 1)**
Use in Metal Working Fluids/Rolling Oils - Industrial

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017 Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0045

<table>
<thead>
<tr>
<th>4. Guidance to check compliance with the exposure scenario (Environment 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 onsite technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (<a href="http://cefic.org/en/reach-for-industries-libraries.html).">http://cefic.org/en/reach-for-industries-libraries.html).</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Exposure estimation (Health 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative approach used to conclude safe use.</td>
</tr>
</tbody>
</table>
Exposure scenario
Use in Metal Working Fluids/Rolling Oils - Professional

Identification

Product name
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

CAS number
72623-87-1

Version number
2017

Es reference
ES07b

1. Title of exposure scenario

Main title
Use in Metal Working Fluids/Rolling Oils - Professional

Process scope
Covers the use in formulated MWFs, including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/reject articles and disposal of waste oils.

Environment

Environmental release category
ERC8a Wide dispersive indoor use of processing aids in open systems.

ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC
ESVOC SpERC 8.7c.v1

Worker

Process category
PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
PROC10 Roller application or brushing of adhesive and other coating.
PROC11 Spraying outside industrial settings and/or applications.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions and in partly open process.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 1000 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.5 tonnes
Maximum daily site tonnage: 1.4 kg

Frequency and duration of use
Use in Metal Working Fluids/Rolling Oils - Professional

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.005

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.05

Emission factor - soil
Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater secondary poisoning.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94,7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 130 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Not determined.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Use in Metal Working Fluids/Rolling Oils - Professional

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0025
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0066

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use as Release Agents or Binders - Industrial

**Identification**

- **Product name**: Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
- **CAS number**: 72623-87-1
- **Version number**: 2017
- **Es reference**: ES10a

**1. Title of exposure scenario**

- **Main title**: Use as Release Agents or Binders - Industrial
- **Process scope**: Covers the use as binders and release agents, including material transfers, mixing, application (including spraying and brushing), mould forming and casting and handling of waste.

**Environment**

- **Environmental release category**: ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
- **SPERC**: ESVOC SpERC 4.10a.v1

**Worker**

- **Process category**: PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC6 Calendering operations. PROC7 Spraying in industrial settings and applications. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC10 Roller application or brushing of adhesive and other coating. PROC13 Treatment of articles by dipping and pouring. PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation.

**2. Conditions of use affecting exposure (Industrial - Environment 1)**

**Product characteristics**

- Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 1 tonnes/year
- Fraction of Regional tonnage used locally: 1
- Annual site tonnage: 1 tonnes
- Maximum daily site tonnage: 50 kg

**Frequency and duration of use**

- Continuous release.
- Emission days: 20 days/year
Use as Release Agents or Binders - Industrial

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (initial release prior to RMM): 1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 3.0E-07</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 0</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

Good practice

Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by terrestrial secondary poisoning.

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 94.7% Removal efficiency (total): 94.7% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.9 tonne/day Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air

Treat air emission to provide a typical removal efficiency of 80%.

Water

No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method

External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing. Avoid contact with contaminated tools and objects. Handle in accordance with good industrial hygiene and safety practice. Assumes a good basic standard of occupational hygiene is implemented. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Additional advice

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

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017 Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039
Use as Release Agents or Binders - Industrial

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use as Release Agents or Binders - Professional

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES10b</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

Main title Use as Release Agents or Binders - Professional

Process scope
Covers the use as binders and release agents, including material transfers, mixing, application by spraying, brushing and handling of waste.

Environment

Environmental release category
ERC8a Wide dispersive indoor use of processing aids in open systems.
ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC
ESVOC SpERC 8.10b.v1

Worker

Process category
PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC6 Calendering operations.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC10 Roller application or brushing of adhesive and other coating.
PROC11 Spraying outside industrial settings and/or applications.
PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 1 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.0005 tonnes
Maximum daily site tonnage: 1.4 g

Frequency and duration of use
Continuous release.
Emission days: 365 days/year
Use as Release Agents or Binders - Professional

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from wide dispersive use (regional only): 0.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from wide dispersive use: 0.025</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from wide dispersive use (regional only): 0.025</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by freshwater sediment.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7% Removal efficiency (total): 94.7% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.3 kg/day Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Not determined.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures
Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039
4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
### Exposure scenario

**Use in Agrochemicals - Professional**

<table>
<thead>
<tr>
<th><strong>Identification</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td><strong>CAS number</strong></td>
</tr>
<tr>
<td><strong>Version number</strong></td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
</tr>
</tbody>
</table>

#### 1. Title of exposure scenario

| **Main title** | Use in Agrochemicals - Professional |
| **Process scope** | Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging, including equipment clean-downs and disposal. |

### Environment

| **Environmental release category** | ERC8a Wide dispersive indoor use of processing aids in open systems.  
ERC8d Wide dispersive outdoor use of processing aids in open systems. |
| **SPERC** | ESVOC SpERC 8.11a.v1 |

### Worker

| **Process category** | PROC1 Use in closed process, no likelihood of exposure.  
PROC2 Use in closed, continuous process with occasional controlled exposure  
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.  
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.  
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.  
PROC11 Spraying outside industrial settings and/or applications.  
PROC13 Treatment of articles by dipping and pouring. |

#### 2. Conditions of use affecting exposure (Industrial - Environment 1)

| **Product characteristics** | Substance is complex UVCB. Predominantly hydrophobic. |
| **Amounts used** | Fraction of EU tonnage used in region: 0.1  
Regional use tonnage: 0.1 tonnes/year  
Fraction of Regional tonnage used locally: 0.002  
Annual site tonnage: 0.0002 tonnes  
Maximum daily site tonnage: 0.55 g |
| **Frequency and duration of use** | Continuous release.  
Emission days: 365 days/year |

| **Other given operational conditions affecting environmental exposure** |
| **Emission factor - air** | Release fraction to air from wide dispersive use (regional only): 0.9 |
| **Emission factor - water** | Release fraction to wastewater from wide dispersive use: 0.01 |
Use in Agrochemicals - Professional

**Emission factor - soil**
- Release fraction to soil from wide dispersive use (regional only): 0.09

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

<table>
<thead>
<tr>
<th>Good practice</th>
<th>Common practices vary across sites, thus conservative process release estimates used.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Risk from environmental exposure is driven by freshwater sediment.</td>
</tr>
</tbody>
</table>

**STP details**

- Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
- Removal efficiency (total): 94.7%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.12 kg/day
- Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

<table>
<thead>
<tr>
<th>Air</th>
<th>Not determined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>No wastewater treatment required.</td>
</tr>
<tr>
<td>Soil</td>
<td>Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.</td>
</tr>
</tbody>
</table>

**Conditions and measures related to external treatment of waste for disposal**

<table>
<thead>
<tr>
<th>Waste treatment</th>
<th>External treatment and disposal of waste should comply with applicable local and/or national regulations.</th>
</tr>
</thead>
</table>

**Conditions and measures related to external recovery of waste**

<table>
<thead>
<tr>
<th>Recovery method</th>
<th>External recovery and recycling of waste should comply with applicable local and/or national regulations.</th>
</tr>
</thead>
</table>

2. Conditions of use affecting exposure (Workers - Health 1)

**Risk management measures**

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Additional advice**

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

3. Exposure estimation (Environment 1)

<table>
<thead>
<tr>
<th>Assessment method</th>
<th>Used Petrorisk model. (Hydrocarbon Block Method)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-driving RCR - air compartment driven RCR(air)</td>
<td>≤ 0.0022</td>
</tr>
<tr>
<td>Risk-driving RCR - water compartment driven RCR(water)</td>
<td>≤ 0.0039</td>
</tr>
</tbody>
</table>

4. Guidance to check compliance with the exposure scenario (Environment 1)
Use in Agrochemicals - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Agrochemicals - Consumer

Identification

Product name  Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number  72623-87-1
Version number  2017
Es reference  ES11b

1. Title of exposure scenario

Main title  Use in Agrochemicals - Consumer
Process scope  Covers the consumer use in agrochemicals in liquid and solid forms.

Environment

Environmental release category  ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC  ESVOC SpERC 8.11b.v1

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally: 0.002
Annual site tonnage: 0.0002 tonnes
Maximum daily site tonnage: 0.55 g

Frequency and duration of use

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air  Release fraction to air from wide dispersive use (regional only): 0.9
Emission factor - water  Release fraction to wastewater from wide dispersive use: 0.01
Emission factor - soil  Release fraction to soil from wide dispersive use (regional only): 0.09

Environmental factors not influenced by risk management measures

Dilution  Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures
Use in Agrochemicals - Consumer

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.12 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Non-Industrial - Health 1)

**Other given operational conditions affecting Non-industrial exposure**

**Consumer information**
Do not ingest. If swallowed, then seek immediate medical assistance.
No additional risk management measures required.

3. Exposure estimation (Environment 1)

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039

4. Guidance to check compliance with the exposure scenario (Environment 1)

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.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Road and Construction Applications - Professional

1. Title of exposure scenario

Main title
Use in Road and Construction Applications - Professional

Process scope
Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.00005 tonnes
Maximum daily site tonnage: 0.14 g

Frequency and duration of use
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.95

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.01
Use in Road and Construction Applications - Professional

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.04

**Environmental factors not influenced by risk management measures**

**Dilution**
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

**Risk management measures**

**Good practice**
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.03 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**
Not determined.

**Water**
No wastewater treatment required.

**Soil**
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. **Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. **Exposure estimation (Environment 1)**

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven \( \text{RCR}(\text{air}) \leq 0.0022 \)
Risk-driving RCR - water compartment driven \( \text{RCR}(\text{water}) \leq 0.0039 \)

4. **Guidance to check compliance with the exposure scenario (Environment 1)**
Use in Road and Construction Applications - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Rubber Production and Processing - Industrial

Identification

Product name: Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number: 72623-87-1
Version number: 2017
Es reference: ES19

1. Title of exposure scenario

Main title: Rubber Production and Processing - Industrial
Process scope: Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.
Sector of use: SU10 Formulation [mixing] of preparations and/or re-packaging, SU11 Manufacture of rubber products

Environment

Environmental release category: ERC4 Industrial use of processing aids in processes and products, not becoming part of articles. ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers.
SPERC: ESVOC SpERC 4.19.v1

Worker

Process category: PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure. PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC6 Calendering operations. PROC7 Spraying in industrial settings and applications. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC13 Treatment of articles by dipping and pouring. PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation. PROC15 Use as laboratory reagent. PROC21 Low energy manipulation of substances bound in materials and/or articles.

2. Conditions of use affecting exposure (industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

59/108
Rubber Production and Processing - Industrial

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 10 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 10 tonnes
Maximum daily site tonnage: 0.5 tonnes

Frequency and duration of use
Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (initial release prior to RMM): 0.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 0.00003</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 0.0001</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by terrestrial secondary poisoning.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Treat air emission to provide a typical removal efficiency of 0%.

Water
No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures
Rubber Production and Processing - Industrial

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0045

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Polymer Processing - Industrial

Identification
Product name
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

CAS number
72623-87-1

Version number
2017

Es reference
ES21a

1. Title of exposure scenario
Main title
Use in Polymer Processing - Industrial

Process scope
Processing of formulated polymers, including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers etc.), moulding, curing and forming activities, material reworks, storage and associated maintenance.

Sector of use
SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.

SPERC
ESVOC SpERC 4.21a.v1

Worker

Process category
PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC6 Calendering operations.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
PROC13 Treatment of articles by dipping and pouring.
PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation.
PROC21 Low energy manipulation of substances bound in materials and/or articles

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

62/108
Use in Polymer Processing - Industrial

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 10 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 10 tonnes
Maximum daily site tonnage: 0.5 tonnes

Frequency and duration of use
Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (initial release prior to RMM): 0.1

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 0

Emission factor - soil
Release fraction to soil from process (initial release prior to RMM): 0.00001

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by terrestrial secondary poisoning.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Treat air emission to provide a typical removal efficiency of 80%.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures
Use in Polymer Processing - Industrial

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven $\text{RCR(air)} \leq 0.017$
Risk-driving RCR - water compartment driven $\text{RCR(water)} \leq 0.0039$

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Polymer Processing - Professional

1. Title of exposure scenario
Main title: Use in Polymer Processing - Professional
Process scope: Processing of formulated polymers, including material transfers, moulding and forming activities, material reworks and associated maintenance.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics:
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used:
- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 10 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 0.005 tonnes
- Maximum daily site tonnage: 14 g

Frequency and duration of use:
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure:
Emission factor - air: Release fraction to air from wide dispersive use (regional only): 0.98
Use in Polymer Processing - Professional

**Emission factor - water**
Release fraction to wastewater from wide dispersive use: 0.01

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.01

**Environmental factors not influenced by risk management measures**

**Dilution**
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

**Risk management measures**

**Good practice**
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 3 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**
Not determined.

**Water**
No wastewater treatment required.

**Soil**
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. **Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**
Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. **Exposure estimation (Environment 1)**

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039

4. **Guidance to check compliance with the exposure scenario (Environment 1)**
Use in Polymer Processing - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
## Exposure scenario

### Use as a Fuel - Professional

### Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-86-0</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES12b</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

#### Main title

Use as a Fuel - Professional

#### Process scope

Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

### Environment

#### Environmental release category

- ERC9a Wide dispersive indoor use of substances in closed systems.
- ERC9b Wide dispersive outdoor use of substances in closed systems.

#### SPERC

ESVOC SpERC 9.12b.v1

### Worker

#### Process category

- PROC1 Use in closed process, no likelihood of exposure.
- PROC2 Use in closed, continuous process with occasional controlled exposure
- PROC3 Use in closed batch process (synthesis or formulation).
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
- PROC16 Using material as fuel sources, limited exposure to unburned product to be expected.

### 2. Conditions of use affecting exposure (Industrial - Environment 1)

#### Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

#### Amounts used

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 10 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 0.005 tonnes
- Maximum daily site tonnage: 14 g

#### Frequency and duration of use

Continuous release.

Emission days: 365 days/year

#### Other given operational conditions affecting environmental exposure

- **Emission factor - air**
  - Release fraction to air from wide dispersive use (regional only): 0.0001

- **Emission factor - water**
  - Release fraction to wastewater from wide dispersive use: 0.00001
Use as a Fuel - Professional

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.00001

**Environmental factors not influenced by risk management measures**

**Dilution**
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

**Risk management measures**

**Good practice**
Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by fresh water.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.5%
Removal efficiency (total): 94.5%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 14 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 200.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**
Not determined.

**Water**
No wastewater treatment required.

**Soil**
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
This substance is consumed during use and no waste of the substance is generated.

---

2. **Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

---

3. **Exposure estimation (Environment 1)**

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)

- Risk-driving RCR - air compartment driven $RCR(air) \leq 0.00018$
- Risk-driving RCR - water compartment driven $RCR(water) \leq 0.00087$

---

4. **Guidance to check compliance with the exposure scenario (Environment 1)**
Use as a Fuel - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use as a Fuel - Consumer

### Identification

<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th>Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAS number</strong></td>
<td>72623-86-0</td>
</tr>
<tr>
<td><strong>Version number</strong></td>
<td>2017</td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
<td>ES12c</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

<table>
<thead>
<tr>
<th><strong>Main title</strong></th>
<th>Use as a Fuel - Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process scope</strong></td>
<td>Covers consumer uses in liquid fuels.</td>
</tr>
<tr>
<td><strong>Product category</strong></td>
<td>PC13 Fuels.</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental release category</strong></td>
<td>ERC9a Wide dispersive indoor use of substances in closed systems.</td>
</tr>
<tr>
<td></td>
<td>ERC9b Wide dispersive outdoor use of substances in closed systems.</td>
</tr>
<tr>
<td><strong>SPERC</strong></td>
<td>ESVOC SpERC 9.12c.v1</td>
</tr>
</tbody>
</table>

### 2. Conditions of use affecting exposure (Non-Industrial - Environment 1)

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Substance is complex UVCB. Predominantly hydrophobic.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amounts used</strong></td>
<td></td>
</tr>
<tr>
<td>Fraction of EU tonnage used in region: 0.1</td>
<td></td>
</tr>
<tr>
<td>Regional use tonnage: 10 tonnes/year</td>
<td></td>
</tr>
<tr>
<td>Fraction of Regional tonnage used locally: 0.0005</td>
<td></td>
</tr>
<tr>
<td>Annual site tonnage: 0.005 tonnes</td>
<td></td>
</tr>
<tr>
<td>Maximum daily site tonnage: 14 g</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency and duration of use</strong></td>
<td>Continuous release. Emission days: 365 days/year</td>
</tr>
<tr>
<td><strong>Other given operational conditions affecting environmental exposure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Emission factor - air</strong></td>
<td>Release fraction to air from wide dispersive use (regional only): 0.0001</td>
</tr>
<tr>
<td><strong>Emission factor - water</strong></td>
<td>Release fraction to wastewater from wide dispersive use: 0.00001</td>
</tr>
<tr>
<td><strong>Emission factor - soil</strong></td>
<td>Release fraction to soil from wide dispersive use (regional only): 0.00001</td>
</tr>
<tr>
<td><strong>Environmental factors not influenced by risk management measures</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Dilution</strong></td>
<td>Local freshwater dilution factor: 10</td>
</tr>
<tr>
<td></td>
<td>Local marine water dilution factor: 10</td>
</tr>
<tr>
<td><strong>Risk management measures</strong></td>
<td></td>
</tr>
</tbody>
</table>
Use as a Fuel - Consumer

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.5%
Maximum allowable site tonnage (Msafe), based on release following total wastewater
treatment removal: 14 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal
Waste treatment
Combustion emissions limited by required exhaust emission controls. Combustion emissions
considered in regional exposure assessment. External treatment and disposal of waste should
comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
Recovery method
This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Non-Industrial - Health 1)

Other given operational conditions affecting Non-industrial exposure

Consumer information
Do not ingest. If swallowed, then seek immediate medical assistance.
No additional risk management measures required.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.00018
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.00087

4. Guidance to check compliance with the exposure scenario (Environment 1)

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.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Lubricants - Industrial

Identification

Product name  Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number  72623-87-1
Version number  2017
Es reference  ES06a

1. Title of exposure scenario

Main title  Lubricants - Industrial
Process scope  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.

Environment

Environmental release category  ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
ERC7 Industrial use of substances in closed systems.

SPERC  ESVOC SpERC 4.6a.v1

Worker

Process category  PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC7 Spraying in industrial settings and applications.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
PROC10 Roller application or brushing of adhesive and other coating.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions and in partly open process.
PROC18 Greasing at high energy conditions.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 2 000 tonnes/year
Fraction of Regional tonnage used locally: 0.05
Annual site tonnage: 100 tonnes
Maximum daily site tonnage: 5.0 tonnes

Frequency and duration of use
Lubricants - Industrial

Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (initial release prior to RMM): 0.0005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 3.0E-06</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 0.001</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

<table>
<thead>
<tr>
<th>Good practice</th>
<th>Common practices vary across sites, thus conservative process release estimates used.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Risk from environmental exposure is driven by terrestrial secondary poisoning.</td>
</tr>
</tbody>
</table>

STP details

<table>
<thead>
<tr>
<th>Estimated substance removal from wastewater via domestic sewage treatment: 94.7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal efficiency (total): 94.7%</td>
</tr>
<tr>
<td>Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 290 tonne/day</td>
</tr>
<tr>
<td>Assumed domestic sewage treatment plant flow (m³/day): 2000.</td>
</tr>
</tbody>
</table>

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

| Air | Treat air emission to provide a typical removal efficiency of 70%. |
| Water | No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water. |
| Soil | Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. |

Conditions and measures related to external treatment of waste for disposal

| Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

Conditions and measures related to external recovery of waste

| Recovery method | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

| Avoid splashing. |
| Avoid contact with contaminated tools and objects. |
| Handle in accordance with good industrial hygiene and safety practice. |
| Assumes a good basic standard of occupational hygiene is implemented. |
| Supervision in place to check that the RMMs in place are being used correctly and OCs followed. |

Additional advice

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

3. Exposure estimation (Environment 1)

Assessment method

| Used Petrorisk model. (Hydrocarbon Block Method) |
Lubricants - Industrial

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0045

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Lubricants - Professional

Identification
Product name: Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number: 72623-87-1
Version number: 2017
Es reference: ES06b, ES06c

1. Title of exposure scenario
Main title: Lubricants - Professional
Process scope: Covers the use of formulated lubricants within closed or contained systems, including incidental exposures during material transfers, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Environment
Environmental release category
Low environmental release:
ERC9a Wide dispersive indoor use of substances in closed systems.
ERC9b Wide dispersive outdoor use of substances in closed systems.
High environmental release:
ERC8a Wide dispersive indoor use of processing aids in open systems.
ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC
ESVOC SpERC 9.6b.v1 ESVOC SpERC 8.6c.v1

Worker
Process category
PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
PROC10 Roller application or brushing of adhesive and other coating.
PROC11 Spraying outside industrial settings and/or applications.
PROC13 Treatment of articles by dipping and pouring.
PROC17 Lubrication at high energy conditions and in partly open process.
PROC18 Greasing at high energy conditions.
PROC20 Heat and pressure transfer fluids in dispersive use but closed systems.

2. Conditions of use affecting exposure (Industrial - Environment 1)
Control of environmental exposure
Environmental release category
Low environmental release:
ERC9a Wide dispersive indoor use of substances in closed systems.
ERC9b Wide dispersive outdoor use of substances in closed systems.

SPERC
ESVOC SpERC 9.6b.v1
Lubricants - Professional

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 15 000 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 7.6 tonnes
Maximum daily site tonnage: 21 kg

Frequency and duration of use
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.01

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.01

Emission factor - soil
Release fraction to soil from wide dispersive use (regional only): 0.01

Environmental factors not influenced by risk management measures
Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures
Good practice
Common practices vary across sites, thus conservative process release estimates used.
Risk from environmental exposure is driven by freshwater sediment.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1 600 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Not determined.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal
Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

2. Conditions of use affecting exposure (Industrial - Environment 2)

Control of environmental exposure
Lubricants - Professional

Environmental release category

High environmental release:
- ERC8a Wide dispersive indoor use of processing aids in open systems.
- ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC

ESVOC SpERC 8.6c.v1

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 100 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 0.05 tonnes
- Maximum daily site tonnage: 0.14 kg

Frequency and duration of use

Continuous release.
- Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
- Release fraction to air from wide dispersive use (regional only): 0.005

Emission factor - water
- Release fraction to wastewater from wide dispersive use: 0.05

Emission factor - soil
- Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Dilution
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

Risk management measures

Good practice
- Common practices vary across sites, thus conservative process release estimates used.
- Risk from environmental exposure is driven by freshwater sediment.

STP details
- Estimated substance removal from wastewater via on-site sewage treatment: 94.7%
  - Removal efficiency (total): 94.7%
  - Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 kg/day
  - Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
- Not determined.

Water
- No wastewater treatment required.

Soil
- Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
- External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
- External recovery and recycling of waste should comply with applicable local and/or national regulations.
2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Additional advice

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

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Low environmental release:
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0051
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.012

High environmental release:
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0041

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Lubricants - Consumer

Identification

Product name  Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number  72623-87-1
Version number  2017
Es reference  ES06d, ES06e

1. Title of exposure scenario

Main title  Lubricants - Consumer
Process scope  Covers the use of formulated lubricants within closed or contained systems, including incidental exposures during material transfers, operation of engines and similar articles, equipment maintenance and disposal of waste oil.
Product category  PC1 Adhesives, sealants. PC24 Lubricants, greases and release products. PC31 Polishes and wax blends.

Environment

Environmental release category  Low environmental release:
ERC9a Wide dispersive indoor use of substances in closed systems.
ERC9b Wide dispersive outdoor use of substances in closed systems.
High environmental release:
ERC8a Wide dispersive indoor use of processing aids in open systems.
ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC  ESVOC SpERC 9.6d.v1 ESVOC SpERC 8.6e.v1

2. Conditions of use affecting exposure (Non-Industrial - Environment 1)

Control of environmental exposure (Non-industrial)

Environmental release category  Low environmental release:
ERC9a Wide dispersive indoor use of substances in closed systems.
ERC9b Wide dispersive outdoor use of substances in closed systems.

SPERC  ESVOC SpERC 9.6d.v1

Product characteristics  Substance is complex UVCB. Predominantly hydrophobic.

Amounts used  Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 5 000 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 2.5 tonnes
Maximum daily site tonnage: 6.8 kg/day

Frequency and duration of use  Continuous release.
Emission days: 365 days/year

80/108
Lubricants - Consumer

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.01

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.01

Emission factor - soil
Release fraction to soil from wide dispersive use (regional only): 0.01

Environmental factors not influenced by risk management measures

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 630 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Non-Industrial - Environment 2)

Control of environmental exposure (Non-industrial)

Environmental release category
High environmental release:
ERC8a Wide dispersive indoor use of processing aids in open systems.
ERC8d Wide dispersive outdoor use of processing aids in open systems.

SPERC
ESVOC SpERC 8.6.e.v1

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 100 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.05 tonnes
Maximum daily site tonnage: 0.14 kg

Frequency and duration of use
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.005

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.05

Emission factor - soil
Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures
Lubricants - Consumer

Dilution
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Non-Industrial - Health 1)

Other given operational conditions affecting Non-industrial exposure

Consumer information
Do not ingest. If swallowed, then seek immediate medical assistance.
No additional risk management measures required.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Low environmental release:
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0025
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0066

High environmental release:
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0041

4. Guidance to check compliance with the exposure scenario (Environment 1)

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.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
# Exposure scenario

## Use in Laboratories - Industrial

<table>
<thead>
<tr>
<th><strong>Identification</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</td>
</tr>
<tr>
<td><strong>CAS number</strong></td>
<td>72623-87-1</td>
</tr>
<tr>
<td><strong>Version number</strong></td>
<td>2017</td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
<td>ES17a</td>
</tr>
</tbody>
</table>

## 1. Title of exposure scenario

**Main title**
Use in Laboratories - Industrial

**Process scope**
Use of the substance within laboratory settings, including material transfers and equipment cleaning.

## Environment

**Environmental release category**
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.

**SPERC**
Not determined.

**Worker**

**Process category**
- PROC10 Roller application or brushing of adhesive and other coating.
- PROC15 Use as laboratory reagent.

## 2. Conditions of use affecting exposure (Industrial - Environment 1)

**Product characteristics**
Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**
- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 0.1 tonnes/year
- Fraction of Regional tonnage used locally: 1
- Annual site tonnage: 0.1 tonnes
- Maximum daily site tonnage: 5 kg

**Frequency and duration of use**
Continuous release.
- Emission days: 20 days/year

**Other given operational conditions affecting environmental exposure**

**Emission factor - air**
Release fraction to air from process (initial release prior to RMM): 0.025

**Emission factor - water**
Release fraction to wastewater from process (initial release prior to RMM): 0.02

**Emission factor - soil**
Release fraction to soil from process (initial release prior to RMM): 0.0001

## Environmental factors not influenced by risk management measures

**Dilution**
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

**Risk management measures**
Use in Laboratories - Industrial

Good practice

Common practices vary across sites, thus conservative process release estimates used.

Risk from environmental exposure is driven by terrestrial secondary poisoning.

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 300 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
Treat air emission to provide a typical removal efficiency of 0%.

Water
No wastewater treatment required.

Soil
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.016
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0079

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)
Use in Laboratories - Industrial

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Laboratories - Professional

**Identification**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES17b</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Use in Laboratories - Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>Use of the substance within laboratory settings, including material transfers and equipment cleaning.</td>
</tr>
</tbody>
</table>

Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC8a Wide dispersive indoor use of processing aids in open systems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPERC</td>
<td>ESVOC SpERC 8.17.v1</td>
</tr>
<tr>
<td>Worker</td>
<td>PROC10 Roller application or brushing of adhesive and other coating.</td>
</tr>
<tr>
<td>Process category</td>
<td>PROC15 Use as laboratory reagent.</td>
</tr>
</tbody>
</table>

2. Conditions of use affecting exposure (industrial - Environment 1)

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Substance is complex UVCB. Predominantly hydrophobic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amounts used</td>
<td>Fraction of EU tonnage used in region: 0.1</td>
</tr>
<tr>
<td></td>
<td>Regional use tonnage: 0.1 tonnes/year</td>
</tr>
<tr>
<td></td>
<td>Fraction of Regional tonnage used locally: 0.0005</td>
</tr>
<tr>
<td></td>
<td>Annual site tonnage: 0.00005 tonnes</td>
</tr>
<tr>
<td></td>
<td>Maximum daily site tonnage: 0.14 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th>Continuous release.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission days</td>
<td>365 days/year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other given operational conditions affecting environmental exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - air</td>
</tr>
<tr>
<td>Emission factor - water</td>
</tr>
<tr>
<td>Emission factor - soil</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

Revision date: 17/10/2017
Supersedes date: 30/05/2016
Use in Laboratories - Professional

Good practice

Common practices vary across sites, thus conservative process release estimates used.

Risk from environmental exposure is driven by freshwater sediment.

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 94.7%

Removal efficiency (total): 94.7%

Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.03 kg/day

Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air

Treat air emission to provide a typical removal efficiency of 0%.

Water

No wastewater treatment required.

Soil

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method

External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.

Avoid contact with contaminated tools and objects.

Handle in accordance with good industrial hygiene and safety practice.

Assumes a good basic standard of occupational hygiene is implemented.

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Additional advice

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

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022

Risk-driving RCR - water compartment driven RCR(water) ≤ 0.0039

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)
Use in Laboratories - Professional

Qualitative approach used to conclude safe use.
## Exposure scenario
### Use in Mining Operations - Industrial

### Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>72623-87-1</td>
</tr>
<tr>
<td>Version number</td>
<td>2017</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES23</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Use in Mining Operations - Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities and substance recovery and disposal.</td>
</tr>
<tr>
<td>Sector of use</td>
<td>SU10 Formulation [mixing] of preparations and/or re-packaging</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPERC</td>
<td>ESVOC SpERC 4.23.v1</td>
</tr>
</tbody>
</table>

### Worker

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

### 2. Conditions of use affecting exposure (Industrial - Environment 1)

#### Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

#### Amounts used

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 100 tonnes/year
- Fraction of Regional tonnage used locally: 1
- Annual site tonnage: 100 tonnes
- Maximum daily site tonnage: 5 tonnes

#### Frequency and duration of use

- Continuous release.
- Emission days: 20 days/year
Use in Mining Operations - Industrial

Other given operational conditions affecting environmental exposure

Emission factor - air  Release fraction to air from process (initial release prior to RMM): 0.25
Emission factor - water  Release fraction to wastewater from process (initial release prior to RMM): 0.50
Emission factor - soil  Release fraction to soil from process (initial release prior to RMM): 0.05

Environmental factors not influenced by risk management measures

Dilution  Local freshwater dilution factor: 10
           Local marine water dilution factor: 100

Risk management measures

Good practice  Common practices vary across sites, thus conservative process release estimates used.
              Risk from environmental exposure is driven by freshwater sediment.

STP details  Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
             Removal efficiency (total): 99.8%
             Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 5 tonne/day
             Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air  Treat air emission to provide a typical removal efficiency of 80%.

Water  Onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 99.8. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): ≥ 95.4.

Soil  Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment  External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method  External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method  Used Petrorisk model. (Hydrocarbon Block Method)
**Use in Mining Operations - Industrial**

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.017  
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.91

### 4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

### 3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Water Treatment Chemicals - Industrial

Identification

Product name  Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number  72623-87-1
Version number  2017
Es reference  ES22a

1. Title of exposure scenario

Main title  Use in Water Treatment Chemicals - Industrial
Process scope  Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Sector of use  SU10 Formulation [mixing] of preparations and/or re-packaging
Environment

Environmental release category  ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
SPERC  ESVOC SpERC 3.22a.v1
Worker

Process category  PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC13 Treatment of articles by dipping and pouring.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics  Substance is complex UVCB. Predominantly hydrophobic.

Amounts used  Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally:  1
Annual site tonnage: 0.1 tonnes
Maximum daily site tonnage: 0.33 kg

Frequency and duration of use  Continuous release.
Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air  Release fraction to air from process (initial release prior to RMM): 0.05
# Use in Water Treatment Chemicals - Industrial

<table>
<thead>
<tr>
<th>Emission factor - water</th>
<th>Release fraction to wastewater from process (initial release prior to RMM): 0.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 0</td>
</tr>
</tbody>
</table>

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

**Good practice**

Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by freshwater sediment.

**STP details**

Estimated substance removal from wastewater via domestic sewage treatment: 94.7%

Removal efficiency (total): 94.7%

Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 19 kg/day

Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**

Treat air emission to provide a typical removal efficiency of 0%.

**Water**

No wastewater treatment required.

**Soil**

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**

External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**

External recovery and recycling of waste should comply with applicable local and/or national regulations.

## 2. Conditions of use affecting exposure (Workers - Health 1)

**Risk management measures**

Avoid splashing.

Avoid contact with contaminated tools and objects.

Handle in accordance with good industrial hygiene and safety practice.

Assumes a good basic standard of occupational hygiene is implemented.

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Additional advice**

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

## 3. Exposure estimation (Environment 1)

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method).

Risk-driving RCR - air compartment driven RCR(air) \( \leq 0.014 \)

Risk-driving RCR - water compartment driven RCR(water) \( \leq 0.017 \)

## 4. Guidance to check compliance with the exposure scenario (Environment 1)
Use in Water Treatment Chemicals - Industrial

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use in Water Treatment Chemicals - Professional

<table>
<thead>
<tr>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td><strong>CAS number</strong></td>
</tr>
<tr>
<td><strong>Version number</strong></td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

| **Main title** | Use in Water Treatment Chemicals - Professional |
| **Process scope** | Covers the use of the substance for the treatment of water in open and closed systems. |

**Environment**

| **Environmental release category** | ERC8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix. |
| **SPERC** | ESVOC SpERC 8.22b.v1 |

**Worker**

| **Process category** | PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC13 Treatment of articles by dipping and pouring. |

2. Conditions of use affecting exposure (Industrial - Environment 1)

**Product characteristics**

Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 0.1 tonnes
Maximum daily site tonnage: 0.27 kg

**Frequency and duration of use**

Continuous release.
Emission days: 365 days/year

**Other given operational conditions affecting environmental exposure**

| **Emission factor - air** | Release fraction to air from wide dispersive use (regional only): 0.01 |
| **Emission factor - water** | Release fraction to wastewater from wide dispersive use: 0.99 |
| **Emission factor - soil** | Release fraction to soil from wide dispersive use (regional only): 0 |
Use in Water Treatment Chemicals - Professional

Environmental factors not influenced by risk management measures

Dilution
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

Risk management measures

Good practice
- Common practices vary across sites, thus conservative process release estimates used.
- Risk from environmental exposure is driven by freshwater sediment.

STP details
- Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
- Removal efficiency (total): 94.7%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 18 kg/day
- Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
- Not determined.

Water
- No wastewater treatment required.

Soil
- Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
- External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
- External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
- Used Petrorisk model. (Hydrocarbon Block Method)
- Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.0066$
- Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.015$

4. Guidance to check compliance with the exposure scenario (Environment 1)
Use in Water Treatment Chemicals - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Explosives Manufacture and Use - Professional

Identification

Product name
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based

CAS number
72623-87-1

Version number
2017

Es reference
ES18b

1. Title of exposure scenario

Main title
Explosives Manufacture and Use - Professional

Process scope
Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning.

Environment

Environmental release category
ERC8e Wide dispersive outdoor use of reactive substances in open systems.

SPERC
Not determined.

Worker

Process category
PROC1 Use in closed process, no likelihood of exposure.
PROC3 Use in closed batch process (synthesis or formulation).
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally: 0.0005
Annual site tonnage: 0.00005 tonnes
Maximum daily site tonnage: 0.14 g

Frequency and duration of use
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.001

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.02

Emission factor - soil
Release fraction to soil from wide dispersive use (regional only): 0.01
Explosives Manufacture and Use - Professional

Environmental factors not influenced by risk management measures

Dilution
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

Risk management measures

Good practice
Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by freshwater sediment.

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94,7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.03 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air
- Not determined.

Water
- No wastewater treatment required.

Soil
- Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Recovery method
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Risk management measures

- Avoid splashing.
- Avoid contact with contaminated tools and objects.
- Handle in accordance with good industrial hygiene and safety practice.
- Assumes a good basic standard of occupational hygiene is implemented.
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven \( RCR(\text{air}) \leq 0.0022 \)
Risk-driving RCR - water compartment driven \( RCR(\text{water}) \leq 0.0039 \)

4. Guidance to check compliance with the exposure scenario (Environment 1)
Explosives Manufacture and Use - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
Exposure scenario
Use as Functional Fluids - Industrial

Identification

Product name: Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number: 72623-87-1
Version number: 2017
Es reference: ES13a

1. Title of exposure scenario

Main title: Use as Functional Fluids - Industrial
Process scope: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment, including maintenance and related material transfers.

Environment

Environmental release category: ERC7 Industrial use of substances in closed systems.
SPERC: ESVOC SpERC 7.13a.v1

Worker

Process category:
PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 100 tonnes/year
Fraction of Regional tonnage used locally: 0.1
Annual site tonnage: 10 tonnes
Maximum daily site tonnage: 500 kg

Frequency and duration of use

Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from process (initial release prior to RMM): 0.0005
Use as Functional Fluids - Industrial

**Emission factor - water**
Release fraction to wastewater from process (initial release prior to RMM): 3.0E-06

**Emission factor - soil**
Release fraction to soil from process (initial release prior to RMM): 0.001

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

**Good practice**
Common practices vary across sites, thus conservative process release estimates used. Risk from environmental exposure is driven by terrestrial secondary poisoning.

**STP details**
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 tonne/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**
Treat air emission to provide a typical removal efficiency of 0%.

**Water**
No wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite waste water.

**Soil**
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

**Conditions and measures related to external treatment of waste for disposal**

**Waste treatment**
External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Conditions and measures related to external recovery of waste**

**Recovery method**
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. **Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**
Avoid splashing.
Avoid contact with contaminated tools and objects.
Handle in accordance with good industrial hygiene and safety practice.
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

3. **Exposure estimation (Environment 1)**

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven $\text{RCR(air)} \leq 0.017$
Risk-driving RCR - water compartment driven $\text{RCR(water)} \leq 0.0039$

4. **Guidance to check compliance with the exposure scenario (Environment 1)**
Use as Functional Fluids - Industrial

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
# Exposure scenario

Use as Functional Fluids - Professional

## Identification

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based</td>
</tr>
<tr>
<td><strong>CAS number</strong></td>
<td>72623-87-1</td>
</tr>
<tr>
<td><strong>Version number</strong></td>
<td>2017</td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
<td>ES13b</td>
</tr>
</tbody>
</table>

## 1. Title of exposure scenario

<table>
<thead>
<tr>
<th><strong>Main title</strong></th>
<th>Use as Functional Fluids - Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process scope</strong></td>
<td>Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment, including maintenance and related material transfers.</td>
</tr>
</tbody>
</table>

## Environment

<table>
<thead>
<tr>
<th><strong>Environmental release category</strong></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC9a</td>
<td>Wide dispersive indoor use of substances in closed systems.</td>
</tr>
<tr>
<td>ERC9b</td>
<td>Wide dispersive outdoor use of substances in closed systems.</td>
</tr>
<tr>
<td><strong>SPERC</strong></td>
<td>ESVOC SpERC 9.13b.v1</td>
</tr>
</tbody>
</table>

## Worker

<table>
<thead>
<tr>
<th><strong>Process category</strong></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>Use in closed process, no likelihood of exposure.</td>
</tr>
<tr>
<td>PROC2</td>
<td>Use in closed, continuous process with occasional controlled exposure</td>
</tr>
<tr>
<td>PROC3</td>
<td>Use in closed batch process (synthesis or formulation)</td>
</tr>
<tr>
<td>PROC8a</td>
<td>Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.</td>
</tr>
<tr>
<td>PROC9</td>
<td>Transfer of substance or preparation into small containers (dedicated filling line, including weighing).</td>
</tr>
<tr>
<td>PROC20</td>
<td>Heat and pressure transfer fluids in dispersive use but closed systems.</td>
</tr>
</tbody>
</table>

## 2. Conditions of use affecting exposure (Industrial - Environment 1)

### Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

### Amounts used

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 100 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 0.05 tonnes
- Maximum daily site tonnage: 0.14 kg

### Frequency and duration of use

Continuous release.

Emission days: 365 days/year

### Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th><strong>Emission factor - air</strong></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Release fraction to air from wide dispersive use (regional only): 0.05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Emission factor - water</strong></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Release fraction to wastewater from wide dispersive use: 0.025</td>
</tr>
</tbody>
</table>
Use as Functional Fluids - Professional

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.025

**Environmental factors not influenced by risk management measures**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilution</td>
<td>Local freshwater dilution factor: 10</td>
</tr>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

**Risk management measures**

<table>
<thead>
<tr>
<th>Good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common practices vary across sites, thus conservative process release estimates used.</td>
</tr>
</tbody>
</table>

**STP details**

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated substance removal from wastewater via domestic sewage treatment: 94.7%</td>
</tr>
<tr>
<td>Removal efficiency (total): 94.7%</td>
</tr>
<tr>
<td>Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 kg/day</td>
</tr>
<tr>
<td>Assumed domestic sewage treatment plant flow (m³/day): 2000.</td>
</tr>
</tbody>
</table>

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

<table>
<thead>
<tr>
<th>Medium</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Water</td>
<td>No wastewater treatment required.</td>
</tr>
<tr>
<td>Soil</td>
<td>Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.</td>
</tr>
</tbody>
</table>

**Conditions and measures related to external treatment of waste for disposal**

<table>
<thead>
<tr>
<th>Waste treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External treatment and disposal of waste should comply with applicable local and/or national regulations.</td>
</tr>
</tbody>
</table>

**Conditions and measures related to external recovery of waste**

<table>
<thead>
<tr>
<th>Recovery method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External recovery and recycling of waste should comply with applicable local and/or national regulations.</td>
</tr>
</tbody>
</table>

2. **Conditions of use affecting exposure (Workers - Health 1)**

**Risk management measures**

<table>
<thead>
<tr>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid splashing.</td>
</tr>
<tr>
<td>Avoid contact with contaminated tools and objects.</td>
</tr>
<tr>
<td>Handle in accordance with good industrial hygiene and safety practice.</td>
</tr>
<tr>
<td>Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
<tr>
<td>Supervision in place to check that the RMMs in place are being used correctly and OCs followed.</td>
</tr>
</tbody>
</table>

**Additional advice**

<table>
<thead>
<tr>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed, then seek immediate medical assistance.</td>
</tr>
</tbody>
</table>

3. **Exposure estimation (Environment 1)**

**Assessment method**

<table>
<thead>
<tr>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used Petrorisk model. (Hydrocarbon Block Method)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022</td>
</tr>
<tr>
<td>Risk-driving RCR - water compartment driven RCR(air) ≤ 0.0004</td>
</tr>
</tbody>
</table>

4. **Guidance to check compliance with the exposure scenario (Environment 1)**
Use as Functional Fluids - Professional

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 onsite 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).

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.
## Exposure scenario
### Use as Functional Fluids - Consumer

### Identification
- **Product name**: Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
- **CAS number**: 72623-87-1
- **Version number**: 2017
- **Es reference**: ES13c

### 1. Title of exposure scenario
- **Main title**: Use as Functional Fluids - Consumer
- **Process scope**: Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.
- **Product category**: PC16 Heat transfer fluids.
  PC17 Hydraulic fluids.

### Environment
- **Environmental release category**: 
  - ERC9a Wide dispersive indoor use of substances in closed systems.
  - ERC9b Wide dispersive outdoor use of substances in closed systems.
- **SPERC**: ESVOC SpERC 9.13c.v1

### 2. Conditions of use affecting exposure (Non-industrial - Environment 1)
#### Product characteristics
- Substance is complex UVCB. Predominantly hydrophobic.

#### Amounts used
- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 100 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 0.05 tonnes
- Maximum daily site tonnage: 0.14 kg/day

#### Frequency and duration of use
- Continuous release.
- Emission days: 365 days/year

#### Other given operational conditions affecting environmental exposure
- **Emission factor - air**: Release fraction to air from wide dispersive use (regional only): 0.05
- **Emission factor - water**: Release fraction to wastewater from wide dispersive use: 0.025
- **Emission factor - soil**: Release fraction to soil from wide dispersive use (regional only): 0.025

#### Environmental factors not influenced by risk management measures
- **Dilution**
  - Local freshwater dilution factor: 10
  - Local marine water dilution factor: 100

### Risk management measures
Use as Functional Fluids - Consumer

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 29 kg/day
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Conditions and measures related to external treatment of waste for disposal
Waste treatment
External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

2. Conditions of use affecting exposure (Non-Industrial - Health 1)

Other given operational conditions affecting Non-industrial exposure

Consumer information
Do not ingest. If swallowed, then seek immediate medical assistance.
No additional risk management measures required.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)
Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.004

4. Guidance to check compliance with the exposure scenario (Environment 1)

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.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.