



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 (ES11b-c), Road and construction applications (ES15), Rubber production and processing (ES19), Polymer processing (ES21a-b), Lubricants (ES6a-e), Laboratory chemical (ES17a-b), Mining chemicals (ES23), Water treatment chemicals (ES22a-b), Explosives manufacture & use (ES18b), Functional fluids (ES13a-c).
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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)
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1.4. Emergency telephone number

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

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

Hazard pictograms



Signal word Danger

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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	
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

3.1. Substances

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	100 %			
<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">CAS number: 72623-87-1</td> <td style="width: 33%;">EC number: 276-738-4</td> <td style="width: 33%;">REACH registration number: 01-2119474889-13</td> </tr> </table>	CAS number: 72623-87-1	EC number: 276-738-4	REACH registration number: 01-2119474889-13	
CAS number: 72623-87-1	EC number: 276-738-4	REACH registration number: 01-2119474889-13		
Classification Asp. Tox. 1 - H304				

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

Product name	NEXBASE™ 3030
Chemical name	Lubricating oils (petroleum), C20-C50, hydrotreated neutral oilbased
REACH registration number	01-2119474889-13-0000
Ingredient notes	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.
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4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

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Suitable extinguishing media Water spray, foam, dry powder or carbon dioxide.

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. Mild steel.

7.3. Specific end use(s)

Specific end use(s) Not known.

SECTION 8: Exposure controls/Personal protection

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8.1. Control parameters

Occupational exposure limits

Oil mist: 5 mg/m³ (8h) HTP 2018/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. Respirator according to standard EN 140.

Environmental exposure controls Store in a demarcated bunded area to prevent release to drains and/or watercourses.

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

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Vapour density	-
Relative density	0,82-0,84 @ 15°C (ASTM D-4052).
Solubility(ies)	Insoluble in water.
Partition coefficient	log Kow: > 6
Auto-ignition temperature	-
Decomposition Temperature	-
Viscosity	Kinematic viscosity typical value 12 mm ² /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

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

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

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

NEXBASE™ 3030**Germ cell mutagenicity****Genotoxicity - in vitro** Based on available data the classification criteria are not met. (OECD 471, 473, 476)**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** Aspiration hazard if swallowed. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.**Toxicological information on ingredients.****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.**Ecological information on ingredients.****Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based****Acute aquatic toxicity****Acute toxicity - fish** LL₅₀, 96 hours: > 100 mg/l, Pimephales promelas (Fat-head Minnow)
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)

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Acute toxicity - aquatic plants	NOEL, 72 hours: ≥ 100 mg/l, <i>Pseudokirchneriella subcapitata</i> WAF (OECD 201)
Acute toxicity - microorganisms	NOEL, 10 minutes: $> 1,93$ mg/l, Micro-organisms (wastewater sludge) (DIN 38412, DIN38409)
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - fish early life stage	NOELR, 14 days: ≥ 1000 mg/l, <i>Oncorhynchus mykiss</i> (Rainbow trout)
Chronic toxicity - aquatic invertebrates	NOEL, 21 days: 10 mg/l, <i>Daphnia magna</i> WAF (OECD 211)

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

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID). No DOT label requirement noted.

14.1. UN number

UN No. (ADR/RID) -

14.2. UN proper shipping name

Proper shipping name (ADR/RID) -

NEXBASE™ 3030**14.3. Transport hazard class(es)**

ADR/RID class -

14.4. Packing group

ADR/RID packing group -

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

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. To the best of our knowledge, this product does not contain any substances listed under California Proposition 65.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories**EU - EINECS/ELINCS**

Yes

Canada - DSL/NDSLYes
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 - ENCS

Yes

NEXBASE™ 3030**Korea - KECI**

Yes

China - IECSC

Yes

Philippines – PICCS

Yes

New Zealand - NZIOC

Yes

Other Inventories of Taiwan and Switzerland.**SECTION 16: Other information**

Abbreviations and acronyms used in the safety data sheet	PEL = Permissible Exposure Limit OSHA = Occupational Safety and Health Administration NTP = National Toxicology Program
Key literature references and sources for data	Regulations, databases, literature, own research. CONCAWE Report 10/14: Hazard classification and labelling of petroleum substances in the EEA - 2014. Chemical Safety Report Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, 2017.
Revision comments	Updated, sections: 3.2. -> 3.1.
Revision date	01/07/2020
Supersedes date	17/10/2017
SDS number	5600
Hazard statements in full	H304 May be fatal if swallowed and enters airways.

Exposure scenario Manufacture of Substance

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES01

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 the substance
SPERC	ESVOC SPERC 1.1.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC15 Use as laboratory reagent.</p>

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

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: 2 200 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 $RCR(\text{air}) \leq 0.017$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.013$

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

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES01a

1. Title of exposure scenario

Main title	Distribution of Substance
Process scope	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.

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article) ERC7 Use of functional fluid at industrial site
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SPERC	ESVOC SPERC 1.1b.v1
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

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

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.

Distribution of Substance

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 $RCR(\text{air}) \leq 0.017$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.004$

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

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES02

1. Title of exposure scenario

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, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Environment	
Environmental release category	ERC2 Formulation into mixture
SPERC	ESVOC SPERC 2.2.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC14 Tableting, compression, extrusion, pelletisation, granulation</p> <p>PROC15 Use as laboratory reagent.</p>

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

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 $RCR(\text{air}) \leq 0.02$ Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.068$
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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. 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

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES03a

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.
Environment	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 4.3a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC7 Industrial spraying</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC10 Roller application or brushing</p> <p>PROC13 Treatment of articles by dipping and pouring.</p> <p>PROC15 Use as laboratory reagent.</p>

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 $RCR(\text{air}) \leq 0.017$

Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0053$

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 Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
SPERC	ESVOC SPERC 8.3b.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Uses in Coatings - Professional

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
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 (M_{safe}), 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.

Uses in Coatings - Professional

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)

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 treatment products PC24 Lubricants, greases and release products. PC31 Polishes and wax blends. PC34 Textile dyes and impregnating products

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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
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Risk management measures

STP details	Estimated substance removal from wastewater via domestic sewage treatment: 94.7% Maximum allowable site tonnage (M _{safe}), based on release following total wastewater treatment removal: 3 kg/day Assumed domestic sewage treatment plant flow (m ³ /day): 2000.
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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.
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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 $RCR(\text{air}) \leq 0.0022$ Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0039$
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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

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES04a

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 4.4a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC7 Industrial spraying</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC10 Roller application or brushing</p> <p>PROC13 Treatment of articles by dipping and pouring.</p>

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
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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 (m ³ /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.
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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 (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.
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3. Exposure estimation (Environment 1)

Assessment method	Used Petrorisk model. (Hydrocarbon Block Method) Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.017$ Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0039$
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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 Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
SPERC	ESVOC SPERC 8.4b.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC19 Manual activities involving hand contact

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

Use in Cleaning Agents - 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): 0.02
Emission factor - water Release fraction to wastewater from wide dispersive use: 1.0E-06
Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 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.
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)

Use in Cleaning Agents - Professional

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)

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 PC38 Welding and soldering products, flux products

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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 (M_{safe}), 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 $RCR(\text{air}) \leq 0.0022$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0039$

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

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

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES05a

1. Title of exposure scenario

Main title	Use in Oil and Gas Field Drilling and Production Operations - Industrial
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	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	Not determined.
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p>

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: 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

Frequency and duration of use

Emission days: N/A

Other given operational conditions affecting environmental exposure

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

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)

OFFSHORE DRILLING: Discharge to aquatic environment is restricted by law and industry prohibits release. OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007. ONSHORE DRILLING: Environmental releases are minimized during onshore drilling operations; waste recycling and disposal is managed according to national and/or local regulations. International Finance Corporation 2007. Environmental, Health, and Safety Guidelines: onshore oil and gas development. Mining Waste Directive (2006/21/EC), European Waste Directive (2008/98/EC) and national transpositions, e.g. Novelle des Kreislaufwirtschaftsgesetzes (KrWG) in Germany.

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

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES05b

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 Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
SPERC	Not determined.
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p>

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: 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

Frequency and duration of use

Emission days: N/A

Other given operational conditions affecting environmental exposure

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

Emission factor - water Release fraction to wastewater from wide dispersive use: N/A

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)

OFFSHORE DRILLING: Discharge to aquatic environment is restricted by law and industry prohibits release. OSPAR Commission 2009. Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2007, including the assessment of data reported in 2006 and 2007. ONSHORE DRILLING: Environmental releases are minimized during onshore drilling operations; waste recycling and disposal is managed according to national and/or local regulations. International Finance Corporation 2007. Environmental, Health and Safety Guidelines: onshore oil and gas development. Mining Waste Directive (2006/21/EC). European Waste Directive (2008/98/EC) and national transpositions, e.g. Novelle des Kreislaufwirtschaftsgesetzes (KrWG) in Germany.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.

Exposure scenario

Use in Metal Working Fluids/Rolling Oils - Industrial

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES07a

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 4.7a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC7 Industrial spraying</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC10 Roller application or brushing</p> <p>PROC13 Treatment of articles by dipping and pouring.</p> <p>PROC17 Lubrication at high energy conditions in metal working operations</p>

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

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

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: 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 $RCR(\text{air}) \leq 0.017$ Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0045$

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 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 Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

SPERC ESVOC SPERC 8.7c.v1

Worker

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
 PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC5 Mixing or blending in batch processes
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC10 Roller application or brushing
 PROC11 Non industrial spraying
 PROC13 Treatment of articles by dipping and pouring.
 PROC17 Lubrication at high energy conditions in metal working operations

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

Use in Metal Working Fluids/Rolling Oils - Professional

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 secondary poisoning.

STP details Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94,7%
Maximum allowable site tonnage (M_{safe}), 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 $RCR(\text{air}) \leq 0.0025$

Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0066$

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 4.10a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC6 Calendering operations.</p> <p>PROC7 Industrial spraying</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC10 Roller application or brushing</p> <p>PROC13 Treatment of articles by dipping and pouring.</p> <p>PROC14 Tableting, compression, extrusion, pelletisation, granulation</p>

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

Other given operational conditions affecting environmental exposure

Use as Release Agents or Binders - Industrial

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
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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 (m ³ /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.
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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 (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.
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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) ≤ 0.017 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)

Use as Release Agents or Binders - 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 Release Agents or Binders - Professional

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES10b

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 Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

SPERC ESVOC SPERC 8.10b.v1

Worker

Process category PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC6 Calendering operations.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC10 Roller application or brushing
PROC11 Non industrial spraying
PROC14 Tableting, compression, extrusion, pelletisation, granulation

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

Use as Release Agents or Binders - 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): 0.95
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

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 (M_{safe}), 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)

Use as Release Agents or Binders - Professional

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)

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

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES11a

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 Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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SPERC	ESVOC SPERC 8.11a.v1
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.
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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
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Use in Agrochemicals - 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): 0.09

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: 0.12 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

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)

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.
Product category	PC12 Lawn and garden preparations (- fertilizers). PC27 Plant protection products.
Environment	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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
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Risk management measures

Use in Agrochemicals - Consumer

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
 Maximum allowable site tonnage (M_{safe}), 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 $RCR(\text{air}) \leq 0.0022$
 Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0039$

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

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

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES15

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.
Environment	
Environmental release category	ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)
SPERC	ESVOC SPERC 8.15.v1
Worker	
Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying 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: 0.0005
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
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.04

Use in Road and Construction Applications - 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 (M_{safe}), 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)

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
SPERC	ESVOC SPERC 4.19.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent. PROC21 Low energy manipulation and handling of substances bound in/on materials or articles

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

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

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.01
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

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 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 $RCR(\text{air}) \leq 0.017$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0045$

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 4.21a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC6 Calendering operations.</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC13 Treatment of articles by dipping and pouring.</p> <p>PROC14 Tableting, compression, extrusion, pelletisation, granulation</p> <p>PROC21 Low energy manipulation and handling of substances bound in/on materials or articles</p>

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

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

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.

Use in Polymer Processing - Industrial

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 $RCR(\text{air}) \leq 0.017$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0039$

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

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES21b

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.
Environment	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
SPERC	ESVOC SPERC 8.21b.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC21 Low energy manipulation and handling of substances bound in/on materials or articles

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

Use in Polymer Processing - Professional

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
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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.
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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 (m ³ /day): 2000.
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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.
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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 (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.
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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 $RCR(\text{water}) \leq 0.0039$
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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

Product name	Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based
CAS number	72623-86-0
Version number	2017
Es reference	ES12b

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 Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
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SPERC	ESVOC SPERC 9.12b.v1
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels
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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 (M_{safe}), based on release following total wastewater treatment removal: 14 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 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 $RCR(\text{air}) \leq 0.00018$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.00087$

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

Product name	Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based
CAS number	72623-86-0
Version number	2017
Es reference	ES12c

1. Title of exposure scenario

Main title	Use as a Fuel - Consumer
Process scope	Covers consumer uses in liquid fuels.
Product category	PC13 Fuels.
Environment	
Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.12c.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

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
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
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Risk management measures

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 (m ³ /day): 2000.
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Use as a Fuel - Consumer

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

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC7 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 4.6a.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic 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

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.0005
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

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: 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)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

Lubricants - Industrial

Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.017$

Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0045$

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 Widespread use of functional fluid (indoor)
 ERC9b Widespread use of functional fluid (outdoor)
 High environmental release:
 ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
 ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

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

Worker

Process category PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
 PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC4 Chemical production where opportunity for exposure arises
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC10 Roller application or brushing
 PROC11 Non industrial spraying
 PROC13 Treatment of articles by dipping and pouring.
 PROC17 Lubrication at high energy conditions in metal working operations
 PROC18 General greasing/lubrication at high kinetic energy conditions
 PROC20 Use of functional fluids in small devices

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

Control of environmental exposure

Lubricants - Professional

Environmental release category	Low environmental release: ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.6b.v1
<u>Product characteristics</u>	Substance is complex UVCB. Predominantly hydrophobic.
<u>Amounts used</u>	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
<u>Frequency and duration of use</u>	Continuous release. Emission days: 365 days/year
<u>Other given operational conditions affecting environmental exposure</u>	
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
<u>Environmental factors not influenced by risk management measures</u>	
Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
<u>Risk management measures</u>	
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 (M _{safe}), based on release following total wastewater treatment removal: 1 600 kg/day Assumed domestic sewage treatment plant flow (m ³ /day): 2000.
<u>Technical onsite conditions and measures to reduce or limit discharges to air, water and soil</u>	
Air	Not determined.
Water	No wastewater treatment required.
Soil	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
<u>Conditions and measures related to external treatment of waste for disposal</u>	
Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
<u>Conditions and measures related to external recovery of waste</u>	
Recovery method	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Lubricants - Professional

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

Control of environmental exposure

Environmental release category	High environmental release: ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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
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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 (m ³ /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

Lubricants - Professional

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 $RCR(\text{air}) \leq 0.0051$
 Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.012$

High environmental release:
 Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.0022$
 Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0041$

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 Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor) High environmental release: ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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 Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
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

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
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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 (m ³ /day): 2000.
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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.
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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 - Environment 2)

Control of environmental exposure (Non-industrial)

Environmental release category	High environmental release: ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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SPERC	ESVOC SPERC 8.6e.v1
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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

Lubricants - Consumer

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 (M_{safe}), 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 $RCR(\text{air}) \leq 0.0025$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0066$

High environmental release:
Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.0022$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0041$

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

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES17a

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

SPERC Not determined.

Worker

Process category PROC10 Roller application or brushing
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

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

Use in Laboratories - Industrial

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 (M_{safe}), 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.
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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 (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.
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3. Exposure estimation (Environment 1)

Assessment method	Used Petrorisk model. (Hydrocarbon Block Method) Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.016$ Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0079$
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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. 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 Laboratories - Professional

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES17b

1. Title of exposure scenario

Main title	Use in Laboratories - Professional
Process scope	Use of the substance within laboratory settings, including material transfers and equipment cleaning.

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
SPERC	ESVOC SPERC 8.17.v1

Worker

Process category	PROC10 Roller application or brushing PROC15 Use as laboratory reagent.
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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): 0.5
Emission factor - water	Release fraction to wastewater from wide dispersive use: 0.5
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used.
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Use in Laboratories - Professional

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 (M_{safe}), 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.
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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 (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.
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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 $RCR(\text{water}) \leq 0.0039$
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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. 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 Mining Operations - Industrial

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES23

1. Title of exposure scenario

Main title	Use in Mining Operations - Industrial
Process scope	Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities and substance recovery and disposal.
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging
Environment	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 4.23.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p>

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
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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 (m ³ /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.
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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 (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.
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3. Exposure estimation (Environment 1)

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

Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.017$

Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.91$

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 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
SPERC	ESVOC SPERC 3.22a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC13 Treatment of articles by dipping and pouring.</p>

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

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.95

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 freshwater sediment.

STP details Estimated substance removal from wastewater via domestic sewage treatment: 94.7%
Removal efficiency (total): 94.7%
Maximum allowable site tonnage (M_{safe}), 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 $RCR(\text{air}) \leq 0.014$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.017$

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

Identification

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES22b

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 Widespread use leading to inclusion into/onto article (outdoor)
SPERC	ESVOC SPERC 8.22b.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC13 Treatment of articles by dipping and pouring.</p>

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

Use in Water Treatment Chemicals - Professional

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 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 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 $RCr(air) \leq 0.0066$
Risk-driving RCR - water compartment driven $RCr(water) \leq 0.015$

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 Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
SPERC	Not determined.
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p>

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

Environmental factors not influenced by risk management measures

Explosives Manufacture and Use - Professional

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 (M_{safe}), 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)

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>).

Explosives Manufacture and Use - Professional

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 Use of functional fluid at industrial site
SPERC	ESVOC SPERC 7.13a.v1
Worker	
Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p>

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

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 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 $RCR(\text{air}) \leq 0.017$
Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.0039$

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

Product name	Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based
CAS number	72623-87-1
Version number	2017
Es reference	ES13b

1. Title of exposure scenario

Main title	Use as Functional Fluids - Professional
Process scope	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment, including maintenance and related material transfers.
Environment	
Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
SPERC	ESVOC SPERC 9.13b.v1
Worker	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC20 Use of functional fluids in small devices

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

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

Use as Functional Fluids - Professional

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

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: 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)
Risk-driving RCR - air compartment driven $RCR(\text{air}) \leq 0.0022$
Risk-driving RCR - water compartment driven 0.004

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 Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
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
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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 (M_{safe}), 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 $RCR(\text{air}) \leq 0.0022$
 Risk-driving RCR - water compartment driven $RCR(\text{water}) \leq 0.004$

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.