SAFETY DATA SHEET
NESSOL Hexane

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

1.1. Product identifier

Product name NESSOL Hexane

Chemical name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

Product number ID 10566

Internal identification 135150

Synonyms; trade names Previous product name: NESSOL LIAV 75.

REACH registration number 01-2119474209-33-0008

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

Identified uses Manufacture of substance, Use as an intermediate, Distribution of substance, Formulation & (re)packing of substances and mixtures, Uses in coatings Use in cleaning agents Use in oil and gas field drilling and production operations Lubricants Blowing agents Use in agrochemicals Use as a fuel, Functional fluids Other Consumer Uses Use in laboratories Rubber production and processing Polymer processing Mining chemicals

1.3. Details of the supplier of the safety data sheet

Supplier Neste Oyj
Keilaranta 21, Espoo, P.O.B. 95, FIN-00095 NESTE, FINLAND
Tel. +358 10 45811
SDS@neste.com (chemical safety)

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 Flam. Liq. 2 - H225

Health hazards Skin Irrit. 2 - H315 Repr. 2 - H361 STOT SE 3 - H336 STOT RE 2 - H373 Asp. Tox. 1 - H304

Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram

Signal word Danger

NESSOL Hexane

Hazard statements
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing vapour/ spray.
P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P280 Wear protective gloves.

Contains
Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

2.3. Other hazards

Other hazards
Volatile liquid., Vapours may accumulate on the floor and in low-lying areas., Vapours may form explosive mixtures with air., Vapours may irritate throat/respiratory system., Risk of soil and ground water contamination.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich **100 %**

CAS number: —
REACH registration number: 01-2119474209-33-XXXX

Classification
Flam. Liq. 2 - H225
Skin Irrit. 2 - H315
Repr. 2 - H361
STOT SE 3 - H336
STOT RE 2 - H373
Asp. Tox. 1 - H304
Aquatic Chronic 2 - H411

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

Composition comments
Benzene (CAS 71-43-2) < 0,1 %.
n-hexane (CAS 110-54-3) typical value ~ 35 wt-%.

Other information
Identity outside the EU (CAS number and name of the substance):, 64742-49-0, Naphta (petroleum), hydrotreated, light., Previous EC number:, 265-151-9.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
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 immediately.

NESSOL Hexane

Skin contact Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

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 Vapours in high concentrations are narcotic. May cause nausea, headache, dizziness and intoxication. Gas or vapour in high concentrations may irritate the respiratory system. Irritating to skin. Repeated exposure may cause skin dryness or cracking. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis. May cause damage to organs (Nervous system) through prolonged or repeated exposure. (n-hexane)

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

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 Highly flammable liquid and vapour. Containers can burst violently or explode when heated, due to excessive pressure build-up. Severe explosion hazard when vapours are exposed to flames.

Hazardous combustion products Carbon dioxide (CO2). Carbon monoxide (CO).

5.3. Advice for firefighters

Protective actions during firefighting Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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 inhalation of vapours and contact with skin and eyes. Wear adequate protective equipment at all operations.

For non-emergency personnel Keep upwind to avoid inhalation of gases, vapours, fumes and smoke.

For emergency responders Prevent unauthorized access. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Use only in well-ventilated areas. Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharges.

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. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.

NESSOL Hexane

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. Pay attention to the fire and health hazards caused by the product.

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 This material is a static accumulator. Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. All handling should only take place in well-ventilated areas. Try to avoid product volatilization during handling and transferring. 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. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Flammable liquid storage. Store in accordance with local regulations. Keep container tightly closed, in a cool, well ventilated place. Keep away from food, drink and animal feeding stuffs. 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. Suitable container materials: Stainless steel. Carbon steel. Polytetrafluoroethylene (PTFE, Teflon). Polypropene Polyethylene. Unsuitable container materials: Butyl rubber. Rubber (natural, latex). EPDM (ethylene-propylene-diene monomer). Polystyrene

7.3. Specific end use(s)

Specific end use(s) Not known.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Ingredient comments Heksaani, paitsi n-heksaani: 500 ppm (8h), 1800 mg/m3 (8 h), 630 ppm (15 min), 2300 mg/m3 (15 min) HTP 2016/FIN
n-Hexane: 20 ppm (8h), 72 mg/m3 (8h), HTP 2016/FIN, EU OELV (EC/2006/15).

Solvent naphtha, group 4: 100 mg/m3 (8h), HTP 2016/FIN.
The individual limit values can be applied for the hydrocarbons.

PNEC Not available.

Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

DNEL

Workers - Inhalation; Long term systemic effects: 93 mg/m³
Workers - Dermal; Long term systemic effects: 13 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 20 mg/m³
Consumer - Dermal; Long term systemic effects: 7 mg/kg/day
Consumer - Oral; Long term systemic effects: 6 mg/kg/day

8.2. Exposure controls

NESSOL Hexane

Appropriate engineering controls	All handling should only take place in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice.
Eye/face protection	Tight-fitting safety glasses.
Hand protection	Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. The selected gloves should have a breakthrough time of at least 8 hours. Protection class 6. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.
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	Filter device/half mask Gas filter, type A2. Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirators according to standards EN 140 and EN 141.
Environmental exposure controls	Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Mobile liquid.
Colour	Clear.
Odour	Hydrocarbons. Mild.
Odour threshold	-
pH	-
Melting point	(Melting/pour point) < -20°C (ASTM D 5950)
Initial boiling point and range	63 - 75°C (EN ISO 3405)
Flash point	-20°C (DIN 51755)
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 1,2 % (calculated) Upper flammable/explosive limit: 8,3 % (calculated)
Vapour pressure	19 - 50 kPa @ 25°C (ESIG tool) ~ 42 kPa @ 38°C 66 kPa @ 50°C
Vapour density	~ 3 (Air = 1.0)
Relative density	0,67 - 0,70 @ 15/4°C (ISO 12185)
Solubility(ies)	The product has poor water-solubility. (< 50 mg/l; 20 oC)
Partition coefficient	log Kow: 3,7...4,1 log Pow: ~ 4
Auto-ignition temperature	> 200°C (ASTM E 659)
Decomposition Temperature	-
Viscosity	Kinematic viscosity < 2 mm2/s @ 40°C ; 0,4 - 0,7 mm2/s @ 20°C (ASTM D 445/20oC) Dynamic viscosity < 50 mPa s @ 20°C

NESSOL Hexane

Explosive properties Not considered to be explosive.

Oxidising properties Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information Surface tension 18-20 mN/m.

Molecular weight 85,2

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. Take precautionary measures against static discharges.

10.5. Incompatible materials

Materials to avoid Oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products None known.

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 Irritating to skin. Repeated exposure may cause skin dryness or cracking.

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met. (OECD 429).

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 475, 478)

Carcinogenicity

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

Reproductive toxicity

Reproductive toxicity - fertility Suspected of damaging fertility. (n-hexane) (OECD 416)

Reproductive toxicity - development Based on available data the classification criteria are not met. (OECD 414)

Specific target organ toxicity - single exposure

NESSOL Hexane

STOT - single exposure May cause nausea, headache, dizziness and intoxication. Anaesthetic in high concentrations.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure May cause damage to organs (Nervous system) through prolonged or repeated exposure. (OECD 413) (n-hexane)

Aspiration hazard

Aspiration hazard May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

General information Long term over-exposure may affect the peripheral nervous system (n-hexane). Individuals with neurological disease should avoid exposure.

Toxicological information on ingredients.

Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

Acute toxicity - oral

Notes (oral LD_{50}) LD_{50} 16750 mg/kg, Oral, Rat (OECD 401)

Acute toxicity - dermal

Notes (dermal LD_{50}) LD_{50} 3350 mg/kg, Dermal, Rabbit (OECD 402)

Acute toxicity - inhalation

Notes (inhalation LC_{50}) LC_{50} 259000 mg/m³, Inhalation, Rat (4h) (OECD 403)

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity Toxic to aquatic life with long lasting effects.

Ecological information on ingredients.

Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

Acute aquatic toxicity

Acute toxicity - fish LL_{50}, 96 hours: 13,4 mg/l, Fish (QSAR)

Acute toxicity - aquatic invertebrates EL50, 48 hours: 23,4 mg/l, (QSAR)

Acute toxicity - aquatic plants EL50, 72 hours: 9,9 mg/l, Algae (QSAR)

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOELR, 28 days: 2,99 mg/l, Fish (QSAR)

Chronic toxicity - aquatic invertebrates NOELR, 21 days: 5,2 mg/l, (QSAR)

12.2. Persistence and degradability

Phototransformation The product contains volatile substances which may spread in the atmosphere. Can be photodegraded in the atmosphere.

Stability (hydrolysis) No significant reaction in water.

NESSOL Hexane

Ecological information on ingredients.

Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

Biodegradation	Rapidly degradable (OECD 301F)

12.3. Bioaccumulative potential

Bioaccumulative potential	Bioaccumulation is unlikely. (QSAR)
Partition coefficient	log Kow: 3,7...4,1 log Pow: ~ 4

12.4. Mobility in soil

Mobility	Volatile. Volatilization is the fastest and most dominant elimination process in surface water and soil. 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.
Adsorption/desorption coefficient	Log Koc = 3,34 (n-hexane)
Henry's law constant	KH = 1,8 atm m3/mol (n-hexane)

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.

12.6. Other adverse effects

Other adverse effects	Not known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Waste is classified as hazardous waste.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Waste packaging should be collected for reuse or recycling.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1208

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	HEXANES

14.3. Transport hazard class(es)

ADR/RID class	3

14.4. Packing group

ADR/RID packing group	II

14.5. Environmental hazards

NESSOL Hexane

Environmentally hazardous substance/marine pollutant
MARINE POLLUTANT

14.6. Special precautions for user

Hazard Identification Number (ADR/RID)	33
Tunnel restriction code	(D/E)

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	Bulk (MARPOL 73/78, Annex II): Hexane (all isomers). Ship type: 2 Pollution category: 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

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.

SECTION 16: Other information

Key literature references and sources for data	Regulations, databases, literature, own research. Chemical Safety Report Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich, 2012.
Revision comments	Updated, sections: 1-3, 9, 14, Exposure scenarios (new SDS software has been introduced) Product name change.
Revision date	27/11/2017
Supersedes date	01/06/2015
SDS number	5963
Hazard statements in full	H225 Highly flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H361 Suspected of damaging fertility or the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects.

Exposure scenario
Manufacture of Substance - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Manufacture of Substance - Industrial
Process scope	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC1 Manufacture of substances. ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
SPERC	ESVOC SpERC 1.1.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 15,000 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 15,000 tonnes
Maximum daily site tonnage: 51 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): 5.0E-02

Manufacture of Substance - Industrial

Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 3.0E-04
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-04

Environmental factors not influenced by risk management measures

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

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 720 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	Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 45.8. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Manufacture of Substance - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
General exposures (closed systems)
No other specific measures identified.
.
General exposures (closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
General exposures (closed systems)
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
General exposures (open systems)
Ensure material transfers are under containment or extract ventilation.
.
Process sampling
Ensure material transfers are under containment or extract ventilation.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Bulk transfers
(open systems)
Provide extract ventilation to points where emissions occur.
.
Bulk transfers
(closed systems)
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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

Manufacture of Substance - 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)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use of Substance as Intermediate - Industrial

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

1. Title of exposure scenario

Main title Use of Substance as Intermediate - Industrial

Process scope Use of substance as an intermediate within closed or contained systems (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Main sector SU3 Industrial uses

Environment

Environmental release category ERC6a Industrial use resulting in manufacture of another substance (use of intermediates).

SPERC ESVOC SpERC 6.1a.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 250 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 250 tonnes
Maximum daily site tonnage: 13 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): 1.0E-02

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 3.0E-04

Use of Substance as Intermediate - Industrial

Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-03

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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% 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 80%.
Water	Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 56.7. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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	This substance is consumed during use and no waste of the substance is generated.

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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use of Substance as Intermediate - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
General exposures (closed systems)
No other specific measures identified.
.
General exposures (closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
General exposures (closed systems)
Batch process
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
General exposures (open systems)
Batch process
Ensure material transfers are under containment or extract ventilation.
.
Process sampling
Ensure material transfers are under containment or extract ventilation.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Bulk transfers
(open systems)
Provide extract ventilation to points where emissions occur.
.
Bulk transfers
(closed systems)
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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

Use of Substance as Intermediate - 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)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Distribution of Substance - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Distribution of Substance - Industrial
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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC1 Manufacture of substances. ERC2 Formulation of preparations. ERC3 Formulation in materials. ERC4 Industrial use of processing aids in processes and products, not becoming part of articles. ERC5 Industrial use resulting in inclusion into or onto a matrix. ERC6a Industrial use resulting in manufacture of another substance (use of intermediates). ERC6b Industrial use of reactive processing aids. ERC6c Industrial use of monomers for manufacture of thermoplastics. ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers. ERC7 Industrial use of substances in closed systems.
SPERC	ESVOC SpERC 1.1b.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC15 Use as laboratory reagent.

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Distribution of Substance - Industrial

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 600 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 1.2 tonnes
Maximum daily site tonnage: 60 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): 1.0E-03
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 210 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	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.

Distribution of Substance - Industrial

Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Distribution of Substance - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
Continuous process
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.
Handle substance within a closed system.
.
General exposures (closed systems)
Batch process
Avoid carrying out activities involving exposure for more than 1 hour.
Handle substance within a closed system.
.
General exposures (open systems)
Batch process
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Process sampling
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
.
Laboratory activities
Handle in a fume cupboard or under extract ventilation.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Bulk transfers
(closed systems)
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
.
Bulk transfers
(open systems)
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
Clear transfer lines prior to de-coupling.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Drum and small package filling
Fill containers/cans at dedicated fill points supplied with local extract ventilation.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.

Distribution of Substance - Industrial

Storage
Store substance within a closed system.
.
Storage
Continuous process
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Formulation & (Re)packing of Substances and Mixtures - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Formulation & (Re)packing of Substances and Mixtures - Industrial
Process scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation of preparations.
SPERC	ESVOC SpERC 2.2.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation. 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: 310 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 310 tonnes
Maximum daily site tonnage: 3.1 tonnes

Frequency and duration of use

Formulation & (Re)packing of Substances and Mixtures - Industrial

Continuous release.
Emission days: 100 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): 2.5E-02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 2.0E-04
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-04

Environmental factors not influenced by risk management measures

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

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 220 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 0%.
Water	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Formulation & (Re)packing of Substances and Mixtures - Industrial

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Formulation & (Re)packing of Substances and Mixtures - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
General exposures (closed systems)
Avoid carrying out activities involving exposure for more than 1 hour.
Handle substance within a closed system.
.
General exposures (open systems)
Provide extract ventilation to points where emissions occur.
.
Batch processes at elevated temperatures
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Ensure material transfers are under containment or extract ventilation.
.
Process sampling
Ensure material transfers are under containment or extract ventilation.
.
Process sampling
Avoid carrying out activities involving exposure for more than 1 hour.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Bulk transfers
Ensure material transfers are under containment or extract ventilation.
.
Mixing operations
(open systems)
Provide extract ventilation to points where emissions occur.
.
Manual
Transfer from/pouring from containers
Provide extract ventilation to points where emissions occur.
.
Drum/batch transfers
Provide extract ventilation to points where emissions occur.
.
Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Handle substance within a predominantly closed system provided with extract ventilation.
.
Drum and small package filling
Fill containers/cans at dedicated fill points supplied with local extract ventilation.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.

Formulation & (Re)packing of Substances and Mixtures - Industrial

.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Uses in Coatings - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
SPERC	ESVOC SpERC 4.3a.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC7 Spraying in industrial settings and applications. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10 Roller application or brushing of adhesive and other coating. PROC13 Treatment of articles by dipping and pouring. PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation. PROC15 Use as laboratory reagent.

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Uses in Coatings - Industrial

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 830 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 830 tonnes
Maximum daily site tonnage: 42 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): 0.98
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 7.0E-04
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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 62 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	Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 94.3. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.

Uses in Coatings - Industrial

Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Uses in Coatings - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
With sample collection
Use in contained systems
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
Film formation - force drying, stoving and other technologies
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
Mixing operations
(closed systems)
General exposures (closed systems)
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
Film formation - air drying
Provide extract ventilation to points where emissions occur.
.
Preparation of material for application
Mixing operations
(open systems)
Provide extract ventilation to points where emissions occur.
.
Spraying (automatic/robotic)
Carry out in a vented booth provided with laminar airflow.
.
Manual spraying
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Wear a respirator conforming to EN140 with Type A filter or better.
.
Material transfers
Provide extract ventilation to points where emissions occur.
Clear transfer lines prior to de-coupling.
, or:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
Clear transfer lines prior to de-coupling.
.
Material transfers
Provide extract ventilation to points where emissions occur.
Clear transfer lines prior to de-coupling.

Uses in Coatings - Industrial

.
Roller, spreader, flow application
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Dipping, immersion and pouring
Provide extract ventilation to points where emissions occur.
.
Laboratory activities
Fill containers/cans at dedicated fill points supplied with local extract ventilation.
.
Material transfers
Drum/batch transfers
Transfer from/pouring from containers
Ensure material transfers are under containment or extract ventilation.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

Uses in Coatings - Industrial

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

Exposure scenario
Uses in Coatings - Professional

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC	ESVOC SpERC 8.3b.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 400 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 0.2 tonnes
Maximum daily site tonnage: 0.55 kg

Frequency and duration of use

Uses in Coatings - Professional

Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.98
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1.4 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 N/A%.
Water	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.

Uses in Coatings - Professional

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Uses in Coatings - Professional

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
General exposures (closed systems)
Handle substance within a closed system.
.
Filling/preparation of equipment from drums or containers.
Use in contained systems
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
Handle substance within a closed system.
.
General exposures (closed systems)
Use in contained systems
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
Handle substance within a closed system.
.
Preparation of material for application
Use in contained batch processes
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Film formation - air drying
Outdoor.
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
Limit the substance content in the mixture to 50%.
, or:
Ensure operation is undertaken outdoors.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Film formation - air drying
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Limit the substance content in the mixture to 50%.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Preparation of material for application
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Uses in Coatings - Professional

Avoid carrying out activities involving exposure for more than 1 hour.
Limit the substance content in the mixture to 50%.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
Limit the substance content in the mixture to 50%.
.
Preparation of material for application
Outdoor.
Ensure operation is undertaken outdoors.
Wear a respirator conforming to EN140 with Type A filter or better.
Limit the substance content in the mixture to 50%.
.
Material transfers
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 25%.
Use drum pumps.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
Use drum pumps.
.
Material transfers
Drum/batch transfers
Dedicated facility
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Roller, spreader, flow application
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a full-face respirator conforming to EN140 with Type A filter or better.
.
Roller, spreader, flow application
Outdoor.
Ensure operation is undertaken outdoors.
Wear a respirator conforming to EN140 with Type A filter or better.
Limit the substance content in the mixture to 50%.
.
Manual spraying
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Wear a respirator conforming to EN140 with Type A filter or better.
Limit the substance content in the mixture to 50%.
.
Manual spraying
Outdoor.
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.
Wear a respirator conforming to EN140 with Type A filter or better.
Limit the substance content in the mixture to 50%.

Uses in Coatings - Professional

.
Dipping, immersion and pouring
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Wear a respirator conforming to EN140 with Type A filter or better.
Avoid manual contact with wet work pieces.
.
Dipping, immersion and pouring
Outdoor.
Ensure operation is undertaken outdoors.
Wear a respirator conforming to EN140 with Type A filter or better.
Avoid manual contact with wet work pieces.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Hand application - fingerpaints, pastels, adhesives
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 25%.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Hand application - fingerpaints, pastels, adhesives
Outdoor.
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.
Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Uses in Coatings - Consumer

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Uses in Coatings - Consumer
Process scope	Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.
Product category	PC1 Adhesives, sealants. PC4 Anti-freeze and de-icing products. PC8a Excipient only PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC9c Finger paints. PC15 Non-metal-surface treatment products. PC18 Ink and toners. PC23 Leather tanning, dye, finishing, impregnation and care products. PC24 Lubricants, greases and release products. PC31 Polishes and wax blends. PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC	ESVOC SpERC 8.3c.v1

Non-industrial

Uses in Coatings - Consumer

Product sub-category

PC1_1 Glues, hobby use
PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue)
PC1_3 Glue from spray
PC1_4 Sealants
PC4_1 Washing car window
PC4_2 Pouring into radiator
PC4_3 Lock de-icer
PC8_1 Laundry and dish-washing products
PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
PC9a_1 Water-borne latex wall paint
PC9a_2 Solvent-rich, high-solid, water-borne paint
PC9a_3 Aerosol spray can
PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)
PC9b_1 Fillers and putty
PC9b_2 Plasters and floor equalisers
PC9b_3 Modelling clay
PC15_1 Water-borne latex wall paint
PC15_2 Solvent rich, high solid, water-borne paint
PC15_3 Aerosol spray can
PC15_4 Removers (paint-, glue-, wall paper-, sealant remover)
PC23_1 Polishes, wax/cream (floor, furniture, shoes)
PC23_2 Polishes, spray (furniture, shoes)
PC24_1 Liquids
PC24_2 Pastes
PC24_3 Sprays
PC31_1 Polishes, wax/cream (floor, furniture, shoes)
PC31_2 Polishes, spray (furniture, shoes)

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: 6.5 tonnes/year
Fraction of Regional tonnage used locally: 5.0E-04
Annual site tonnage: 3.3E-03 tonnes
Maximum daily site tonnage: 8.9E-03 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 process (initial release prior to RMM): 0.985

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

Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0.005

Environmental factors not influenced by risk management measures

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

Uses in Coatings - Consumer

Risk management measures

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 96.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 32 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)

Control of Non-industrial exposure

PC1 Adhesives, sealants. PC1_1 Glues, hobby use PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue) PC1_3 Glue from spray PC1_4 Sealants PC4 Anti-freeze and de-icing products. PC4_1 Washing car window PC4_2 Pouring into radiator PC4_3 Lock de-icer PC8 Biocidal products. PC8a Excipient only PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC9a Coatings and paints, thinners, paint removers. PC9a_1 Water-borne latex wall paint PC9a_2 Solvent-rich, high-solid, water-borne paint PC9a_3 Aerosol spray can. PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover). PC9b Fillers, putties, plasters, modelling clay. PC9b_1 Fillers and putty PC9b_2 Plasters and floor equalisers PC9b_3 Modelling clay PC9c Finger paints.

Product characteristics

Physical state

Liquid

Vapour pressure

50000 Pa

Concentration details

PC1_1 Glues, hobby use PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue) PC1_3 Glue from spray PC1_4 Sealants : Covers concentrations up to 30 %. . PC4_1 Washing car window PC9b_3 Modelling clay : Covers concentrations up to 1 %. . PC4_2 Pouring into radiator PC18 Ink and toners. PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids. : Covers concentrations up to 10 %. . PC4_3 Lock de-icer PC9a_3 Aerosol spray can PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9c Finger paints : Covers concentrations up to 50 %. . PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) : Covers concentrations up to 5 %. . PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) : Covers concentrations up to 15 %. . PC9a_1 Water-borne latex wall paint : Covers concentrations up to 1.5 %. . PC9a_2 Solvent-rich, high-solid, water-borne paint : Covers concentrations up to 27.5 %. . PC9b_1 Fillers and putty PC9b_2 Plasters and floor equalisers : Covers concentrations up to 2 %.

PC1_4 Sealants : Avoid using at a product concentration greater than 8%. PC9b_2 Plasters and floor equalisers : Avoid using at a product concentration greater than 1.2%. PC9c Finger paints : Avoid using at a product concentration greater than 1.25%.

Amounts used

Uses in Coatings - Consumer

PC1_1 Glues, hobby use
For each use event, covers use amounts up to 9 g.
.
PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue)
For each use event, covers use amounts up to 6390 g.
.
PC1_3 Glue from spray
For each use event, covers use amounts up to 85.05 g.
.
PC1_4 Sealants
For each use event, covers use amounts up to 75 g.
.
PC4_1 Washing car window
For each use event, covers use amounts up to 0.5 g.
.
PC4_2 Pouring into radiator
For each use event, covers use amounts up to 2000 g.
.
PC4_3 Lock de-icer
For each use event, covers use amounts up to 4 g.
.
PC8_1 Laundry and dish-washing products
For each use event, covers use amounts up to 15 g.
.
PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
For each use event, covers use amounts up to 27 g.
.
PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
For each use event, covers use amounts up to 35 g.
.
PC9a_1 Water-borne latex wall paint
For each use event, covers use amounts up to 2760 g.
.
PC9a_2 Solvent-rich, high-solid, water-borne paint
For each use event, covers use amounts up to 744 g.
.
PC9a_3 Aerosol spray can
For each use event, covers use amounts up to 215 g.
.
PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)
For each use event, covers use amounts up to 491 g.
.
PC9b_1 Fillers and putty
For each use event, covers use amounts up to 85 g.
.
PC9b_2 Plasters and floor equalisers
For each use event, covers use amounts up to 13.8 kg.
For each use event, avoid using a product amount of greater than 900 g.

Frequency and duration of use

Uses in Coatings - Consumer

Covers use up to 1 time(s)/day.
Unless otherwise stated.
.
PC1_1 Glues, hobby use
Covers use up to 365 days/year.
Covers exposure up to 4.00 hours per event.
.
PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue)
Covers use up to 1 days/year.
Covers exposure up to 6.00 hours per event.
.
PC1_3 Glue from spray
Covers use up to 6 days/year.
Covers exposure up to 4.00 hours per event.
.
PC1_4 Sealants
Covers use up to 365 days/year.
Covers exposure up to 1.00 hours per event.
.
PC4_1 Washing car window
Covers use up to 365 days/year.
Covers exposure up to 0.02 hours per event.
.
PC4_2 Pouring into radiator
Covers use up to 365 days/year.
Covers exposure up to 0.17 hours per event.
.
PC4_3 Lock de-icer
Covers use up to 365 days/year.
Covers exposure up to 0.25 hours per event.
.
PC8_1 Laundry and dish-washing products
Covers use up to 365 days/year.
Covers exposure up to 0.50 hours per event.
.
PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Covers use up to 128 days/year.
Covers exposure up to 0.33 hours per event.
.
PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Covers use up to 128 days/year.
Covers exposure up to 0.17 hours per event.
.
PC9a_1 Water-borne latex wall paint
Covers use up to 4 days/year.
Covers exposure up to 2.20 hours per event.
.
PC9a_2 Solvent-rich, high-solid, water-borne paint
Covers use up to 6 days/year.
Covers exposure up to 2.20 hours per event.
.
PC9a_3 Aerosol spray can
Covers use up to 2 days/year.
Covers exposure up to 0.33 hours per event.

Uses in Coatings - Consumer

.
PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)
Covers use up to 3 days/year.
Covers exposure up to 2.00 hours per event.
.
PC9b_1 Fillers and putty
Covers use up to 12 days/year.
Covers exposure up to 4.00 hour per event.
.
PC9b_2 Plasters and floor equalisers
Covers use up to 12 days/year.
Covers exposure up to 2.00 hours per event.
.
PC9b_3 Modelling clay
Covers use up to 365 days/year.
.
PC9c Finger paints
Covers use up to 365 days/year.

Human factors not influenced by risk management

Potentially exposed body parts

PC1_1 Glues, hobby use PC1_3 Glue from spray PC1_4 Sealants PC9b_1 Fillers and putty : Covers skin contact area up to 35.73 cm². . PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue) : Covers skin contact area up to 110.00 cm². . PC4_2 Pouring into radiator PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) : Covers skin contact area up to 428.00 cm². . PC4_3 Lock de-icer : Covers skin contact area up to 214.40 cm². . PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9b_2 Plasters and floor equalisers : Covers skin contact area up to 857.50 cm². . PC9a_1 Water-borne latex wall paint PC9a_2 Solvent-rich, high-solid, water-borne paint : Covers skin contact area up to 428.75 cm². . PC9b_3 Modelling clay PC9c Finger paints : Covers skin contact area up to 254.40 cm². . PC18 Ink and toners. : Covers skin contact area up to 71.40 cm².

PC9b_3 Modelling clay : For each use event, assumes swallowed amount of (g): 1 g . PC9c Finger paints : For each use event, assumes swallowed amount of (g): 1.35 g .

Other given operational conditions affecting Non-industrial exposure

Setting

PC1_4 Sealants . PC9b_2 Plasters and floor equalisers : Avoid using when windows closed.

Temperature

Assumes activities are at ambient temperature (unless stated differently).

Room size

PC1_1 Glues, hobby use PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue) PC1_3 Glue from spray PC1_4 Sealants PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC9a_1 Water-borne latex wall paint PC9a_2 Solvent-rich, high-solid, water-borne paint PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9b_1 Fillers and putty PC9b_2 Plasters and floor equalisers : Covers use in room size of 20 m³. . PC4_1 Washing car window PC4_2 Pouring into radiator PC4_3 Lock de-icer PC9a_3 Aerosol spray can : Covers use in room size of 34 m³.

Ventilation rate

Covers use under typical household ventilation. Unless otherwise stated. PC4_1 Washing car window . PC4_2 Pouring into radiator . PC4_3 Lock de-icer . PC9a_3 Aerosol spray can : Covers use in a one car garage (34 m³) under typical ventilation.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

Uses in Coatings - Consumer

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

Control of Non-industrial exposure

PC15 Non-metal-surface treatment products. PC15_1 Water-borne latex wall paint PC15_2 Solvent rich, high solid, water-borne paint PC15_3 Aerosol spray can PC15_4 Removers (paint-, glue-, wall paper-, sealant remover) PC18 Ink and toners. PC23 Leather tanning, dye, finishing, impregnation and care products. PC23_1 Polishes, wax/cream (floor, furniture, shoes) PC23_2 Polishes, spray (furniture, shoes) PC24 Lubricants, greases and release products. PC24_1 Liquids PC24_2 Pastes PC24_3 Sprays PC31 Polishes and wax blends. PC31_1 Polishes, wax/cream (floor, furniture, shoes) PC31_2 Polishes, spray (furniture, shoes) PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids.

Product characteristics

Physical state Liquid

Vapour pressure 50000 Pa

Concentration details PC15_1 Water-borne latex wall paint : Covers concentrations up to 1.5 %. . PC18 Ink and toners. PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids. : Covers concentrations up to 10 %. . PC24_2 Pastes : Covers concentrations up to 20 %. . PC15_2 Solvent rich, high solid, water-borne paint : Covers concentrations up to 27.5 %. . PC15_3 Aerosol spray can PC15_4 Removers (paint-, glue-, wall paper-, sealant remover) PC23 Leather tanning, dye, finishing, impregnation and care products. PC24_3 Sprays PC31 Polishes and wax blends. : Covers concentrations up to 50 %. . PC24_1 Liquids : Covers concentrations up to 100 %.

Amounts used

Uses in Coatings - Consumer

PC15_1 Water-borne latex wall paint
For each use event, covers use amounts up to 2760 g.
.
PC15_2 Solvent rich, high solid, water-borne paint
For each use event, covers use amounts up to 744 g.
.
PC15_3 Aerosol spray can
For each use event, covers use amounts up to 215 g.
.
PC15_4 Removers (paint-, glue-, wall paper-, sealant remover)
For each use event, covers use amounts up to 491 g.
.
PC18 Ink and toners.
For each use event, covers use amounts up to 40 g.
.
PC23_1 Polishes, wax/cream (floor, furniture, shoes)
For each use event, covers use amounts up to 56 g.
.
PC23_2 Polishes, spray (furniture, shoes)
For each use event, covers use amounts up to 56 g.
.
PC24_1 Liquids
For each use event, covers use amounts up to 2200 g.
.
PC24_2 Pastes
For each use event, covers use amounts up to 34 g.
.
PC24_3 Sprays
For each use event, covers use amounts up to 73 g.
.
PC31_1 Polishes, wax/cream (floor, furniture, shoes)
For each use event, covers use amounts up to 142 g.
.
PC31_2 Polishes, spray (furniture, shoes)
For each use event, covers use amounts up to 35 g.
.
PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids.
For each use event, covers use amounts up to 115 g.

Frequency and duration of use

Uses in Coatings - Consumer

Covers use up to 1 time(s)/day.
Unless otherwise stated.
.
PC15_1 Water-borne latex wall paint
Covers use up to 4 days/year.
Covers exposure up to 2.20 hours per event.
.
PC15_2 Solvent rich, high solid, water-borne paint
Covers use up to 6 days/year.
Covers exposure up to 2.20 hours per event.
.
PC15_3 Aerosol spray can
Covers use up to 2 days/year.
Covers exposure up to 0.33 hours per event.
.
PC15_4 Removers (paint-, glue-, wall paper-, sealant remover)
Covers use up to 3 days/year.
Covers exposure up to 2.00 hours per event.
.
PC18 Ink and toners.
Covers use up to 365 days/year.
Covers exposure up to 2.20 hours per event.
.
PC23_1 Polishes, wax/cream (floor, furniture, shoes)
Covers use up to 29 days/year.
Covers exposure up to 1.23 hours per event.
.
PC23_2 Polishes, spray (furniture, shoes)
Covers use up to 8 days/year.
Covers exposure up to 0.33 hours per event.
.
PC24_1 Liquids
Covers use up to 4 days/year.
Covers exposure up to 0.17 hours per event.
.
PC24_2 Pastes
Covers use up to 10 days/year.
Covers exposure up to 4.00 hours per event.
.
PC24_3 Sprays
Covers use up to 6 days/year.
Covers exposure up to 0.17 hours per event.
.
PC31_1 Polishes, wax/cream (floor, furniture, shoes)
Covers use up to 29 days/year.
Covers exposure up to 1.23 hours per event.
.
PC31_2 Polishes, spray (furniture, shoes)
Covers use up to 8 days/year.
Covers exposure up to 0.33 hours per event.
.
PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids.
Covers use up to 365 days/year.
Covers exposure up to 1.00 hours per event.

Uses in Coatings - Consumer

Human factors not influenced by risk management

Potentially exposed body parts	PC15_3 Aerosol spray can PC15_4 Removers (paint-, glue-, wall paper-, sealant remover) PC34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids. : Covers skin contact area up to 857,5 cm². . PC24_1 Liquids PC24_2 Pastes : Covers skin contact area up to 468,0 cm². . PC23 Leather tanning, dye, finishing, impregnation and care products. PC31 Polishes and wax blends. : Covers skin contact area up to 430 cm². . PC15_1 Water-borne latex wall paint PC15_2 Solvent rich, high solid, water-borne paint PC24_3 Sprays : Covers skin contact area up to 428,75 cm². . PC18 Ink and toners. : Covers skin contact area up to 71,40 cm².

Other given operational conditions affecting Non-industrial exposure

Setting	Covers use under typical household ventilation. Covers use in room size of 20 m³. Unless otherwise stated.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Room size	PC15_3 Aerosol spray can PC24_1 Liquids : Covers use in a one car garage (34 m³) under typical ventilation.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

Assessment method	Used Petrorisk model. (Hydrocarbon Block Method)

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. 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)

Assessment method	The ECETOC TRA tool has been used to estimate consumer exposures, unless otherwise indicated.

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

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

Exposure scenario
Use in Cleaning Agents - Industrial

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

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.

Main sector SU3 Industrial uses

Environment

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

SPERC ESVOC SpERC 4.4a.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 340 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 100 tonnes
Maximum daily site tonnage: 5.0 tonnes

Frequency and duration of use

Continuous release.
Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Use in Cleaning Agents - 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-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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 14,000 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	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Cleaning Agents - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
Bulk transfers
Ensure material transfers are under containment or extract ventilation.
.
Automated process with (semi) closed systems
Use in contained systems
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Automated process with (semi) closed systems
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Application of cleaning products in closed systems
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Filling/preparation of equipment from drums or containers.
Ensure material transfers are under containment or extract ventilation.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Use in contained batch processes
Provide extract ventilation to points where emissions occur.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Degreasing small objects in cleaning station
Provide extract ventilation to points where emissions occur.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Cleaning with low-pressure washers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Cleaning with high-pressure washers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Wear a respirator conforming to EN140 with Type A filter or better.
.

Use in Cleaning Agents - Industrial

Manual
Surface cleaning
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use in Cleaning Agents - Professional

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

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).

Main sector SU22 Professional uses

Environment

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

SPERC ESVOC SpERC 8.4b.v1

Worker

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

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: 220 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 0.11 tonnes
Maximum daily site tonnage: 0.31 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 process (initial release prior to RMM): 2.0E-02

Use in Cleaning Agents - Professional

Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1.0E-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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1.1 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 N/A%.
Water	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Cleaning Agents - Professional

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
Filling/preparation of equipment from drums or containers.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Wear a respirator conforming to EN140 with Type A filter or better.
.
Automated process with (semi) closed systems
Use in contained systems
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Automated process with (semi) closed systems
Drum/batch transfers
Use in contained systems
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Semi-automated process (e.g. semi-automatic application of floor care and maintenance products)
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
Filling/preparation of equipment from drums or containers.
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Manual
Surface cleaning
Dipping, immersion and pouring
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 5%.
.

Use in Cleaning Agents - Professional

Manual
Surface cleaning
Wear a respirator conforming to EN140 with Type A filter or better.
.
Cleaning with low-pressure washers
Rolling, brushing
No spraying
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Cleaning with high-pressure washers
Spraying
Indoor.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Limit the substance content in the product to 5%.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Cleaning with high-pressure washers
Spraying
Outdoor.
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 1%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Limit the substance content in the product to 5%.
Wear a full-face respirator conforming to EN140 with Type A filter or better.
.
Manual
Surface cleaning
Spraying
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 4 hours.
.
Manual
Surface cleaning
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Wear a respirator conforming to EN140 with Type A filter or better.
.
Ad hoc manual application via trigger sprays, dipping, etc.
Rolling, brushing
Provide extract ventilation to points where emissions occur.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Provide extract ventilation to points where emissions occur.
Wear a respirator conforming to EN140 with Type A filter or better.

Use in Cleaning Agents - Professional

.
Ad hoc manual application via trigger sprays, dipping, etc.
Rolling, brushing
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Application of cleaning products in closed systems
Outdoor.
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 1 hour.
, or:
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Cleaning of medical devices
Provide extract ventilation to points where emissions occur.
Wear a respirator conforming to EN140 with Type A filter or better.
.
Storage
No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use in Cleaning Agents - Consumer

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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. PC8 Biocidal products. PC8a Excipient only PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC9c Finger paints. PC24 Lubricants, greases and release products. PC35 Washing and cleaning products (including solvent-based products). PC38 Welding and soldering products, flux products.
Main sector	SU21 Consumer uses

Environment

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

Non-industrial

Use in Cleaning Agents - Consumer

Product sub-category

PC3_1 Air care, instant action (aerosol sprays)
PC3_n Air care, instant action (aerosol sprays) - pesticidial - excipient only
PC3_2 Air care, continuous action (solid and liquid)
PC3_n Air care, continuous action (solid and liquid) - pesticidial - excipient only
PC4_1 Washing car window
PC4_2 Pouring into radiator
PC4_3 Lock de-icer
PC8_1 Laundry and dish-washing products
PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
PC9a_1 Water-borne latex wall paint
PC9a_2 Solvent-rich, high-solid, water-borne paint
PC9a_3 Aerosol spray can
PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)
PC9b_1 Fillers and putty
PC9b_2 Plasters and floor equalisers
PC9b_3 Modelling clay
PC24_1 Liquids
PC24_2 Pastes
PC24_3 Sprays
PC35_1 Laundry and dish washing products
PC35_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, carpet cleaners, metal cleaners)
PC35_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

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: 110 tonnes/year
Fraction of Regional tonnage used locally: 5.0E-04
Annual site tonnage: 5.6E-02 tonnes
Maximum daily site tonnage: 0.15 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 process (initial release prior to RMM): 0.95

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

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

Environmental factors not influenced by risk management measures

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

Risk management measures

Use in Cleaning Agents - Consumer

STP details Estimated substance removal from wastewater via domestic sewage treatment: 96.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 430 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)

Control of Non-industrial exposure

PC3_1 Air care, instant action (aerosol sprays) PC3_2 Air care, continuous action (solid and liquid) PC4_1 Washing car window PC4_2 Pouring into radiator PC4_3 Lock de-icer PC8a Excipient only PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC9a_1 Water-borne latex wall paint PC9a_2 Solvent-rich, high-solid, water-borne paint PC9a_3 Aerosol spray can. PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover). PC9b_1 Fillers and putty PC9b_2 Plasters and floor equalisers PC9b_3 Modelling clay PC9c Finger paints.

Product characteristics

Physical state Liquid

Vapour pressure 50000 Pa

Concentration details PC3_1 Air care, instant action (aerosol sprays) . PC3_n Air care, instant action (aerosol sprays) - pesticidial - excipient only . PC3_n Air care, continuous action (solid and liquid) - pesticidial - excipient only . PC4_3 Lock de-icer PC9a_3 Aerosol spray can PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9c Finger paints : Covers concentrations up to 50 %. . PC3_2 Air care, continuous action (solid and liquid) PC4_2 Pouring into radiator : Covers concentrations up to 10 %. . PC4_1 Washing car window PC9b_3 Modelling clay : Covers concentrations up to 1 %. . PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) : Covers concentrations up to 5 %. . PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) : Covers concentrations up to 15 %. . PC9a_1 Water-borne latex wall paint : Covers concentrations up to 1.5 %. . PC9a_2 Solvent-rich, high-solid, water-borne paint : Covers concentrations up to 27.5 %. . PC9b_1 Fillers and putty PC9b_2 Plasters and floor equalisers : Covers concentrations up to 2 %.

PC9b_2 Plasters and floor equalisers : Avoid using at a product concentration greater than 1.2%. PC9c Finger paints : Avoid using at a product concentration greater than 1.25%.

Amounts used

Use in Cleaning Agents - Consumer

PC3_1 Air care, instant action (aerosol sprays)
For each use event, covers use amounts up to 0.1 g.
.
PC3_n Air care, instant action (aerosol sprays) - pesticidial - excipient only
For each use event, covers use amounts up to 0.5 g.
.
PC3_2 Air care, continuous action (solid and liquid)
For each use event, covers use amounts up to 0.48 g.
.
PC3_n Air care, continuous action (solid and liquid) - pesticidial - excipient only
For each use event, covers use amounts up to 0.48 g.
.
PC4_1 Washing car window
For each use event, covers use amounts up to 0.5 g.
.
PC4_2 Pouring into radiator
For each use event, covers use amounts up to 2000 g.
.
PC4_3 Lock de-icer
For each use event, covers use amounts up to 4 g.
.
PC8_1 Laundry and dish-washing products
For each use event, covers use amounts up to 15 g.
.
PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
For each use event, covers use amounts up to 27 g.
.
PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
For each use event, covers use amounts up to 35 g.
.
PC9a_1 Water-borne latex wall paint
For each use event, covers use amounts up to 2760 g.
.
PC9a_2 Solvent-rich, high-solid, water-borne paint
For each use event, covers use amounts up to 744 g.
.
PC9a_3 Aerosol spray can
For each use event, covers use amounts up to 215 g.
.
PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)
For each use event, covers use amounts up to 491 g.
.
PC9b_1 Fillers and putty
For each use event, covers use amounts up to 85 g.
.
PC9b_2 Plasters and floor equalisers
For each use event, covers use amounts up to 13.8 kg.

Frequency and duration of use

Use in Cleaning Agents - Consumer

Covers use up to 1 time(s)/day.
Unless otherwise stated.
.
PC3_1 Air care, instant action (aerosol sprays)
Covers use up to 365 days/year.
Covers use up to 4 time(s)/day.
Covers exposure up to 0.25 hours per event.
.
PC3_n Air care, instant action (aerosol sprays) - pesticidial - excipient only
Covers use up to 365 days/year.
Covers use up to 4 time(s)/day.
Covers exposure up to 0.25 hours per event.
.
PC3_2 Air care, continuous action (solid and liquid)
Covers use up to 365 days/year.
Covers exposure up to 8.00 hours per event.
.
PC3_n Air care, continuous action (solid and liquid) - pesticidial - excipient only
Covers use up to 365 days/year.
Covers exposure up to 8.00 hours per event.
.
PC4_1 Washing car window
Covers use up to 365 days/year.
Covers exposure up to 0.02 hours per event.
.
PC4_2 Pouring into radiator
Covers use up to 365 days/year.
Covers exposure up to 0.17 hours per event.
.
PC4_3 Lock de-icer
Covers use up to 365 days/year.
Covers exposure up to 0.25 hours per event.
.
PC8_1 Laundry and dish-washing products
Covers use up to 365 days/year.
Covers exposure up to 0.50 hours per event.
.
PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Covers use up to 128 days/year.
Covers exposure up to 0.33 hours per event.
.
PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Covers use up to 128 days/year.
Covers exposure up to 0.17 hours per event.
.
PC9a_1 Water-borne latex wall paint
Covers use up to 4 days/year.
Covers exposure up to 2.20 hours per event.
.
PC9a_2 Solvent-rich, high-solid, water-borne paint
Covers use up to 6 days/year.
Covers exposure up to 2.20 hours per event.
.
PC9a_3 Aerosol spray can

Use in Cleaning Agents - Consumer

Covers use up to 2 days/year.
Covers exposure up to 0.33 hours per event.
.
PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)
Covers use up to 3 days/year.
Covers exposure up to 2.00 hours per event.
.
PC9b_1 Fillers and putty
Covers use up to 12 days/year.
Covers exposure up to 4.00 hour per event.
.
PC9b_2 Plasters and floor equalisers
Covers use up to 12 days/year.
Covers exposure up to 2.00 hours per event.
.
PC9b_3 Modelling clay
Covers use up to 365 days/year.
.
PC9c Finger paints
Covers use up to 365 days/year.

Human factors not influenced by risk management

Potentially exposed body parts	PC3_2 Air care, continuous action (solid and liquid) PC3_n Air care, continuous action (solid and liquid) - pesticidial - excipient only : Covers skin contact area up to 35.70 cm². . PC4_2 Pouring into radiator PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) : Covers skin contact area up to 428.00 cm². . PC4_3 Lock de-icer : Covers skin contact area up to 214.40 cm². . PC8_1 Laundry and dish-washing products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9b_2 Plasters and floor equalisers : Covers skin contact area up to 857.50 cm². . PC9a_1 Water-borne latex wall paint PC9a_2 Solvent-rich, high-solid, water-borne paint : Covers skin contact area up to 428.75 cm². . PC9b_1 Fillers and putty : Covers skin contact area up to 35.73 cm². . PC9b_3 Modelling clay PC9c Finger paints : Covers skin contact area up to 254.40 cm². PC9b_3 Modelling clay : For each use event, assumes swallowed amount of (g): 1 g . PC9c Finger paints : For each use event, assumes swallowed amount of (g): 1.35 g .

Other given operational conditions affecting Non-industrial exposure

Setting	PC9b_2 Plasters and floor equalisers : Avoid using when windows closed.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Room size	Covers use in room size of 20 m³. Unless otherwise stated. . PC4_1 Washing car window PC4_2 Pouring into radiator PC4_3 Lock de-icer PC9a_3 Aerosol spray can : Covers use in room size of 34 m³.
Ventilation rate	Covers use under typical household ventilation. Unless otherwise stated. . PC4_1 Washing car window PC4_2 Pouring into radiator PC4_3 Lock de-icer PC9a_3 Aerosol spray can : Covers use in a one car garage (34 m³) under typical ventilation.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

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

Control of Non-industrial exposure

Use in Cleaning Agents - Consumer

PC24 Lubricants, greases and release products. PC24_1 Liquids PC24_2 Pastes PC24_3 Sprays PC35_1 Laundry and dish washing products PC35_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, carpet cleaners, metal cleaners) PC35_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC38 Welding and soldering products, flux products.

Product characteristics

Physical state Liquid

Vapour pressure 50000 Pa

Concentration details PC24_1 Liquids : Covers concentrations up to 100 %. . PC24_3 Sprays : Covers concentrations up to 50 %. . PC24_2 Pastes PC38 Welding and soldering products, flux products. : Covers concentrations up to 20 %. . PC35_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) : Covers concentrations up to 15 %. . PC35_1 Laundry and dish washing products PC35_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, carpet cleaners, metal cleaners) : Covers concentrations up to 5 %.

Amounts used

PC24_1 Liquids
For each use event, covers use amounts up to 2200 g.
.
PC24_2 Pastes
For each use event, covers use amounts up to 34 g.
.
PC24_3 Sprays
For each use event, covers use amounts up to 73 g.
.
PC35_1 Laundry and dish washing products
For each use event, covers use amounts up to 15 g.
.
PC35_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, carpet cleaners, metal cleaners)
For each use event, covers use amounts up to 27 g.
.
PC35_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
For each use event, covers use amounts up to 35 g.
.
PC38 Welding and soldering products, flux products.
For each use event, covers use amounts up to 12 g.

Frequency and duration of use

Use in Cleaning Agents - Consumer

Covers use up to 1 time(s)/day.
Unless otherwise stated.
.
PC24_1 Liquids
Covers use up to 4 days/year.
Covers exposure up to 0,17 hours per event.
.
PC24_2 Pastes
Covers use up to 10 days/year.
Covers exposure up to 4,00 hours per event.
.
PC24_3 Sprays
Covers use up to 6 days/year.
Covers exposure up to 0,17 hours per event.
.
PC35_1 Laundry and dish washing products
Covers use up to 365 days/year.
Covers exposure up to 0,50 hours per event.
.
PC35_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, carpet cleaners, metal cleaners)
Covers use up to 128 days/year.
Covers exposure up to 0,33 hours per event.
.
PC35_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Covers use up to 128 days/year.
Covers exposure up to 0,17 hours per event.
.
PC38 Welding and soldering products, flux products.
Covers use up to 365 days/year.
Covers exposure up to 1,00 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts: PC24_1 Liquids PC24_2 Pastes : Covers skin contact area up to 468,00 cm². . PC24_3 Sprays : Covers skin contact area up to 428,75 cm². . PC35_1 Laundry and dish washing products PC35_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, carpet cleaners, metal cleaners) PC38 Welding and soldering products, flux products. : Covers skin contact area up to 857,50 cm². . PC35_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) : Covers skin contact area up to 428,00 cm².

Other given operational conditions affecting Non-industrial exposure

Temperature: Assumes activities are at ambient temperature (unless stated differently).

Room size: Covers use in room size of 20 m³. Unless otherwise stated. . PC24_1 Liquids : Covers use in room size of 34 m³.

Ventilation rate: Covers use under typical household ventilation. Unless otherwise stated. . PC24_1 Liquids : Covers use in a one car garage (34 m³) under typical ventilation.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

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

Use in Cleaning Agents - Consumer

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. 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)

Assessment method

The ECETOC TRA tool has been used to estimate consumer exposures, unless otherwise indicated.

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

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

Exposure scenario
Lubricants - Industrial

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

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.

Main sector SU3 Industrial uses

Environment

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

SPERC ESVOC SpERC 4.6a.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 12 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 12 tonnes
Maximum daily site tonnage: 600 kg

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): 1.0E-02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 3.0E-05
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-03

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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1400 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	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.

Lubricants - Industrial

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Lubricants - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
.
General exposures (closed systems)
Batch process
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
General exposures (open systems)
Ensure material transfers are under containment or extract ventilation.
.
Bulk transfers
Ensure material transfers are under containment or extract ventilation.
.
Filling/preparation of equipment from drums or containers.
Use drum pumps or carefully pour from container.
.
Initial factory fill of equipment
Ensure material transfers are under containment or extract ventilation.
.
Operation and lubrication of high energy open equipment
Provide extract ventilation to points where emissions occur.
.
Manual
Application
Rolling, brushing
Ensure material transfers are under containment or extract ventilation.
.
Treatment by dipping and pouring
Provide extract ventilation to points where emissions occur.
.
Spraying
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Maintenance (of larger plant items) and machine set up
Drain down and flush system prior to equipment break-in or maintenance.
.
Maintenance (of larger plant items) and machine set up
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Drain down and flush system prior to equipment break-in or maintenance.

Lubricants - Industrial

.
Maintenance of small items
Provide extract ventilation to points where emissions occur.
.
Remanufacture of reject articles
Wear a respirator conforming to EN140 with Type A filter or better.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Wear a respirator conforming to EN140 with Type A filter or better.
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use as a Blowing Agent - Industrial

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

1. Title of exposure scenario

Main title Use as a Blowing Agent - Industrial

Process scope Use as a blowing agent for rigid and flexible foams, including material transfers, mixing and injection, curing, cutting, storage and packing

Main sector SU3 Industrial uses

Environment

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

SPERC ESVOC SpERC 4.9.v1

Worker

Process category

PROC1 Use in closed process, no likelihood of exposure.
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
PROC12 Use of blow agents in manufacture of foam.

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: 47 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 47 tonnes
Maximum daily site tonnage: 2.3 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): 1.0

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 3.0E-05

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

Environmental factors not influenced by risk management measures

Use as a Blowing Agent - Industrial

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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1400 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	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use as a Blowing Agent - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour.
Use dry-break couplings for material transfer.
Clear transfer lines prior to de-coupling.
.
Mixing operations
(closed systems)
No other specific measures identified.
.
Extrusion and expansion of polymer mass
Provide extract ventilation to points where emissions occur.
.
Cutting and shaving
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Collection and re-processing of shavings, cuttings, etc.
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Product packaging
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Storage
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Mixing operations
(closed systems)
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Intermediate polymer storage
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Centrifuging, including discharging
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Drying and storage
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.

Use as a Blowing Agent - Industrial

Semi-bulk packaging
Provide extract ventilation to points where emissions occur.
.
Treatment by heating
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Article formation in mould
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Cutting by heated wire
Manual
Provide extract ventilation to points where emissions occur.
.
Mixing operations
(closed systems)
Provide extract ventilation to points where emissions occur.
.
Drum and small package filling
Filling/preparation of equipment from drums or containers.
Ensure material transfers are under containment or extract ventilation.
.
Foaming
Provide extract ventilation to points where emissions occur.
.
Compression
Provide extract ventilation to points where emissions occur.
.
Cutting by heated wire
Provide extract ventilation to points where emissions occur.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

Use as a Blowing Agent - Industrial

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

Exposure scenario
Use in Agrochemicals - Professional

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

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.

Main sector SU22 Professional uses

Environment

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

SPERC ESVOC SpERC 8.11a.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 330 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 0.67 tonnes
Maximum daily site tonnage: 1.8 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 process (initial release prior to RMM): 0.9

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

Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0.09

Use in Agrochemicals - 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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 4.3 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 N/A%.
Water	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Agrochemicals - Professional

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
Transfer from/pouring from containers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
.
Mixing operations
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
.
Spraying/fogging by manual application
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours.
Wear a full-face respirator conforming to EN140 with Type A filter or better.
Wear suitable coveralls to prevent exposure to the skin.
.
Spraying/fogging by machine application
Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20.
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 4 hours.
.
Ad hoc manual application via trigger sprays, dipping, etc.
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 1 hour.
.
Equipment cleaning and maintenance
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Ensure material transfers are under containment or extract ventilation.
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use as a Fuel - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Use as a Fuel - Industrial
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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC7 Industrial use of substances in closed systems.
SPERC	ESVOC SpERC 7.12a.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 14 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 14 tonnes
Maximum daily site tonnage: 690 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): 5.0E-02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Use as a Fuel - Industrial

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.

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 96.2%
Removal efficiency (total): 96.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1600 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 95%.

Water

Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0

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.

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)

Product characteristics

Physical state

Liquid

Vapour pressure

Vapour pressure > 10 kPa at STP.

Concentration details

Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting

Assumes a good basic standard of occupational hygiene is implemented.

Temperature

Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use as a Fuel - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
Provide extract ventilation to points where emissions occur.
Handle substance within a closed system.
.
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Use drum pumps or carefully pour from container.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
.
General exposures (closed systems)
Use in contained batch processes
Ensure material transfers are under containment or extract ventilation.
.
Use as a fuel
Handle substance within a closed system.
.
General exposures (closed systems)
Batch process
Ensure material transfers are under containment or extract ventilation.
Handle substance within a closed system.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide extract ventilation to material transfer points and other openings.
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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

Use as a Fuel - 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)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use as a Fuel - Professional

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC9a Wide dispersive indoor use of substances in closed systems. ERC9b Wide dispersive outdoor use of substances in closed systems.
SPERC	ESVOC SpERC 9.12b.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 2.7 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 1.4E-03 tonnes
Maximum daily site tonnage: 3.7E-03 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 process (initial release prior to RMM): 1.0E-02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-05

Use as a Fuel - 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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 13 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 N/A%.
Water	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0
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.

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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use as a Fuel - Professional

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 4 hours.
Handle substance within a closed system.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
Handle substance within a closed system.
.
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
.
Refuelling
Ensure operation is undertaken outdoors.
Limit the substance content in the product to 5%.
Avoid carrying out activities involving exposure for more than 4 hours.
, or:
Wear a respirator conforming to EN140 with Type A filter or better.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
.
General exposures (closed systems)
Batch process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Limit the substance content in the product to 25%.
Handle substance within a closed system.
.
Use as a fuel
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
.
Equipment cleaning and maintenance
Wear a respirator conforming to EN140 with Type A filter or better.
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

Use as a Fuel - Professional

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

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

3. Exposure estimation (Health 1)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use as a Fuel - Consumer

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Use as a Fuel - Consumer
Process scope	Covers consumer uses in liquid fuels.
Product category	PC13 Fuels.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC9a Wide dispersive indoor use of substances in closed systems. ERC9b Wide dispersive outdoor use of substances in closed systems.
SPERC	ESVOC SpERC 9.12c.v1

Non-industrial

Product sub-category	PC13_1 Liquid: automotive refuelling PC13_2 Liquid: scooter refuelling PC13_3 Liquid: garden equipment - use PC13_4 Liquid: garden equipment - refuelling PC13_5 Liquid: lamp oil PC13_6 Liquid: home space heater fuel

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: 2.7 tonnes/year
Fraction of Regional tonnage used locally: 5.0E-04
Annual site tonnage: 1.4E-03 tonnes
Maximum daily site tonnage: 3.7E-03 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 process (initial release prior to RMM): 1.0E-02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-05

Environmental factors not influenced by risk management measures

Use as a Fuel - 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: 96.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 13 kg/day
Assumed domestic sewage treatment plant flow (m³/day):
2000

Conditions and measures related to external treatment of waste for disposal

Waste treatment

Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

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)

Product characteristics

Physical state

Liquid

Vapour pressure

50000 Pa

Concentration details

Covers percentage substance in the product up to 100% (unless stated differently).

Amounts used

PC13_1 Liquid: automotive refuelling
For each use event, covers use amounts up to 37.5 kg.
.
PC13_2 Liquid: scooter refuelling
For each use event, covers use amounts up to 3.75 kg.
.
PC13_3 Liquid: garden equipment - use
For each use event, covers use amounts up to 750 g.
.
PC13_4 Liquid: garden equipment - refuelling
For each use event, covers use amounts up to 750 g.
.
PC13_5 Liquid: lamp oil
For each use event, covers use amounts up to 100 g.
.
PC13_6 Liquid: home space heater fuel
For each use event, covers use amounts up to 3000 g.

Frequency and duration of use

Use as a Fuel - Consumer

PC13_1 Liquid: automotive refuelling
Covers use up to 52 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.05 hours per event.
.
PC13_2 Liquid: scooter refuelling
Covers use up to 52 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.03 hours per event.
.
PC13_3 Liquid: garden equipment - use
Covers use up to 26 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 2.00 hours per event.
.
PC13_4 Liquid: garden equipment - refuelling
Covers use up to 26 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.03 hours per event.
.
PC13_5 Liquid: lamp oil
Covers use up to 52 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.01 hours per event.
.
PC13_6 Liquid: home space heater fuel
Covers use up to 365 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.03 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts	PC13_1 Liquid: automotive refuelling . PC13_2 Liquid: scooter refuelling . PC13_5 Liquid: lamp oil . PC13_6 Liquid: home space heater fuel : Covers skin contact area up to 210.00 cm². PC13_4 Liquid: garden equipment - refuelling : Covers skin contact area up to 420.00 cm².

Other given operational conditions affecting Non-industrial exposure

Setting	PC13_1 Liquid: automotive refuelling . PC13_2 Liquid: scooter refuelling . PC13_3 Liquid: garden equipment - use : Covers outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Room size	PC13_1 Liquid: automotive refuelling . PC13_2 Liquid: scooter refuelling . PC13_3 Liquid: garden equipment - use : Covers use in room size of 100 m³. PC13_4 Liquid: garden equipment - refuelling : Covers use in room size of 34 m³. PC13_5 Liquid: lamp oil . PC13_6 Liquid: home space heater fuel : Covers use in room size of 20 m³.
Ventilation rate	PC13_4 Liquid: garden equipment - refuelling : Covers use in a one car garage (34 m³) under typical ventilation. PC13_5 Liquid: lamp oil . PC13_6 Liquid: home space heater fuel : Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

Use as a Fuel - Consumer

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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. 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)

Assessment method The ECETOC TRA tool has been used to estimate consumer exposures, unless otherwise indicated.

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

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

Exposure scenario
Use as Functional Fluids - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC7 Industrial use of substances in closed systems.
SPERC	ESVOC SpERC 7.13a.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 610 tonnes/year
Fraction of Regional tonnage used locally: 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): 1.0E-02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 3.0E-05
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-03

Use as Functional Fluids - Industrial

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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1400 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	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use as Functional Fluids - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
(closed systems)
Transfer via enclosed lines.
.
Bulk transfers
(closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Transfer via enclosed lines.
.
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out operation for more than 1 hour.
.
Filling of articles/equipment
(closed systems)
Provide extract ventilation to points where emissions occur.
.
Filling/preparation of equipment from drums or containers.
Provide extract ventilation to material transfer points and other openings.
.
General exposures (closed systems)
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
General exposures (open systems)
Provide extract ventilation to points where emissions occur.
.
General exposures (open systems)
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Provide extract ventilation to points where emissions occur.
Restrict area of openings to equipment.
.
Remanufacture of reject articles
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Use as Functional Fluids - Industrial

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use as Functional Fluids - Professional

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC9a Wide dispersive indoor use of substances in closed systems. ERC9b Wide dispersive outdoor use of substances in closed systems.
SPERC	ESVOC SpERC 9.13b.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC20 Heat and pressure transfer fluids in dispersive use but closed systems.

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: 5.2E-02 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 process (initial release prior to RMM): 0.05
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.025
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.025

Use as Functional Fluids - 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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 410 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 N/A%.
Water	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use as Functional Fluids - Professional

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Use drum pumps or carefully pour from container.
.
Transfer from/pouring from containers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Use drum pumps or carefully pour from container.
.
Filling/preparation of equipment from drums or containers.
Avoid carrying out operation for more than 1 hour.
Use drum pumps or carefully pour from container.
.
General exposures (closed systems)
Handle substance within a closed system.
.
General exposures (closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
General exposures (closed systems)
Batch process
Ensure material transfers are under containment or extract ventilation.
.
Operation of equipment containing engine oils and similar
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Operation of equipment containing engine oils and similar
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Remanufacture of reject articles
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Limit the substance content in the product to 25%.
Avoid carrying out activities involving exposure for more than 4 hours.
.
Equipment cleaning and maintenance
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Store substance within a closed system.

Use as Functional Fluids - Professional

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Other Consumer Uses - Consumer

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

1. Title of exposure scenario

Main title	Other Consumer Uses - Consumer
Process scope	Consumer uses e.g. as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: for cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation.
Product category	PC28 Perfumes, fragrances. PC39 Cosmetics, personal care.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC	ESVOC SpERC 8.16.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: 19 tonnes/year
Fraction of Regional tonnage used locally: 5.0E-04
Annual site tonnage: 9.3E-03 tonnes
Maximum daily site tonnage: 2.5E-02 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 process (initial release prior to RMM): 0.95
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.025
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 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

Other Consumer Uses - Consumer

STP details Estimated substance removal from wastewater via domestic sewage treatment: 96.2%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 88 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.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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. 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)

Assessment method Not applicable.

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

Not applicable.

Exposure scenario
Use in Laboratories - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation of preparations. ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 0.1 tonnes
Maximum daily site tonnage: 5.0 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): 1.0E-04

Environmental factors not influenced by risk management measures

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

Risk management measures

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

Use in Laboratories - Industrial

STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.2 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	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Laboratories - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Carefully pour from containers.
Put lids on containers immediately after use.
.
Cleaning
Handle in a fume cupboard or under extract ventilation.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use in Laboratories - Professional

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

1. Title of exposure scenario

Main title Use in Laboratories - Professional

Process scope Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

Main sector SU22 Professional uses

Environment

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

SPERC ESVOC SpERC 8.17.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 0.1 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 5.0E-05 tonnes
Maximum daily site tonnage: 1.4E-04 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 process (initial release prior to RMM): 0.5

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.5

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.

Use in Laboratories - Professional

STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 0.49 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	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Cleaning
Handle in a fume cupboard or under extract ventilation.
Avoid carrying out activities involving exposure for more than 1 hour.

Use in Laboratories - Professional

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Rubber Production and Processing - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC1 Manufacture of substances. ERC4 Industrial use of processing aids in processes and products, not becoming part of articles. ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers.
SPERC	ESVOC SpERC 4.19.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Rubber Production and Processing - Industrial

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 79 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 79 tonnes
Maximum daily site tonnage: 4.0 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): 3.0E-04
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 1.0E-04

Environmental factors not influenced by risk management measures

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

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% 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 0%.
Water	Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.

Rubber Production and Processing - Industrial

Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Rubber Production and Processing - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
.
Material transfers
(closed systems)
No other specific measures identified.
.
Material transfers
(closed systems)
Continuous process
Avoid carrying out operation for more than 1 hour.
.
Material transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out operation for more than 1 hour.
.
Bulk weighing
Handle substance within a closed system.
.
Bulk weighing
Continuous process
Avoid carrying out operation for more than 1 hour.
Handle substance within a closed system.
.
Small scale weighing
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out operation for more than 1 hour.
.
Additive premixing
Avoid carrying out operation for more than 1 hour.
.
Additive premixing
Ensure material transfers are under containment or extract ventilation.
.
Material transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out operation for more than 1 hour.
Handle substance within a closed system.
.
Calendering (including Banburys)
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Minimise exposure by extracted full enclosure for the operation or equipment.
.
Pressing uncured rubber blanks
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Tyre build up
Minimise exposure by partial enclosure of the operation or equipment and provide extract

Rubber Production and Processing - Industrial

ventilation at openings.
.
Vulcanisation
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Minimise exposure by extracted full enclosure for the operation or equipment.
.
Vulcanisation
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Manual
Minimise exposure by extracted full enclosure for the operation or equipment.
.
Cooling cured articles
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Minimise exposure by extracted full enclosure for the operation or equipment.
.
Production of articles by dipping and pouring
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Finishing operations
No other specific measures identified.
.
Laboratory activities
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Equipment maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Rubber Production and Processing - Industrial

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use in Polymer Processing - Industrial

Identification

Product name Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich

REACH registration number 01-2119474209-33-0008

Version number 2010

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.

Main sector SU3 Industrial uses

Environment

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

SPERC ESVOC SpERC 4.21a.v1

Worker

Process category

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 94 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 94 tonnes
Maximum daily site tonnage: 4.7 tonnes

Frequency and duration of use

Use in Polymer Processing - 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): 0.5
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): 1.0E-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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 17,000 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	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.

Use in Polymer Processing - Industrial

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Polymer Processing - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
(closed systems)
No other specific measures identified.
.
Bulk transfers
(closed systems)
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Bulk transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out operation for more than 1 hour.
.
Bulk weighing
No other specific measures identified.
.
Bulk weighing
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Handle substance within a closed system.
.
Small scale weighing
Ensure material transfers are under containment or extract ventilation.
.
Additive premixing
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Additive premixing
Ensure material transfers are under containment or extract ventilation.
Avoid carrying out activities involving exposure for more than 4 hours.
.
Bulk transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out operation for more than 1 hour.
Transfer via enclosed lines.
Use dry-break couplings for material transfer.
.
Calendering (including Banburys)
Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Production of articles by dipping and pouring
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Extrusion and masterbatching
Minimise exposure by partial enclosure of the operation or equipment and provide extract

Use in Polymer Processing - Industrial

ventilation at openings.
.
Injection moulding of articles
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
.
Finishing operations
No other specific measures identified.
.
Equipment maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use in Polymer Processing - Professional

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
SPERC	ESVOC SpERC 8.21b.v1

Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC6 Calendering operations. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation. PROC21 Low energy manipulation of substances bound in materials and/or articles

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 27 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 1.3E-02 tonnes
Maximum daily site tonnage: 3.6E-02 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 process (initial release prior to RMM): 0.98
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01

Use in Polymer Processing - Professional

Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 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.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency fraction (onsite): 96.2% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 130 kg/day Assumed domestic sewage treatment plant flow (m³/day): 2000

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

Air	Treat air emission to provide a typical removal efficiency of N/A%.
Water	Risk from environmental exposure is driven by fresh water. No wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 0.0 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 0.0 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Polymer Processing - Professional

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
(closed systems)
Handle substance within a closed system.
.
Bulk transfers
(closed systems)
Continuous process
Handle substance within a closed system.
Avoid carrying out operation for more than 1 hour.
.
Material transfers
Provide extract ventilation to material transfer points and other openings.
.
Injection moulding of articles
Minimise exposure by extracted full enclosure for the operation or equipment.
Limit the substance content in the product to 5%.
.
Rework of articles
No other specific measures identified.
.
Equipment maintenance
Avoid carrying out operation for more than 1 hour.
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.
.
Storage
Continuous process
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Use in Polymer Processing - Professional

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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

Exposure scenario
Use in Mining Operations - Industrial

Identification

Product name	Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich
REACH registration number	01-2119474209-33-0008
Version number	2010

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.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
SPERC	ESVOC SpERC 4.23.v1

Worker

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

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 47 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 47 tonnes
Maximum daily site tonnage: 2.3 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): 0.25

Use in Mining Operations - Industrial

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

Environmental factors not influenced by risk management measures

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

Risk management measures

Good practice	Common practices vary across sites, thus conservative process release estimates used.
STP details	Estimated substance removal from wastewater via domestic sewage treatment: 96.2% Removal efficiency (total): 99.9% Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.3 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	Risk from environmental exposure is driven by freshwater sediment. Onsite wastewater treatment required. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 99.9. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): 96.3 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)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure > 10 kPa at STP.
Concentration details	Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting	Assumes a good basic standard of occupational hygiene is implemented.
Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Risk management measures

Use in Mining Operations - Industrial

General measures (skin irritants)
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
.
Bulk transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Transfer via enclosed lines.
.
Drum/batch transfers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
Use drum pumps.
.
Pouring from small containers
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
.
General exposures (closed systems)
Ensure material transfers are under containment or extract ventilation.
.
General exposures (open systems)
Provide extract ventilation to points where emissions occur.
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Phase separation
(closed systems)
Provide extract ventilation to points where emissions occur.
.
Ion exchange processes
(closed systems)
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
.
Process sampling
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Avoid carrying out activities involving exposure for more than 4 hours.
.
Mixing operations
(closed systems)
No other specific measures identified.
.
Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
.
Storage
Store substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method Used Petrorisk model. (Hydrocarbon Block Method)

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

Use in Mining Operations - 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)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Qualitative approach used to conclude safe use.

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

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