



SAFETY DATA SHEET

ALKANES, C14-17, CHLORO

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

1.1. Product identifier

Product name	ALKANES, C14-17, CHLORO
Product number	57450
Synonyms; trade names	CERECLOR E40, CERECLOR E40C, CERECLOR E45, CERECLOR E45C, CERECLOR E50, CERECLOR E56, CERECLOR E58, CERECLOR E60, CERECLOR S40, CERECLOR S45, CERECLOR S45SS, CERECLOR S50, CERECLOR S52, CERECLOR S52HV, CERECLOR S52SS, CERECLOR 51L, CERECLOR S54, CERECLOR S55, CERECLOR S56, CERECLOR S58, CERECLOR S60, CERECLOR S63, CERECLOR E56T
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EU index number	602-095-00-X
EC number	287-477-0

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

Identified uses	Lubricant. Production of Lubricants Anti-set-off agent Anti-adhesive agent Flame retardant Plasticizer Thread-cutting lubricant. Leather and paper industry Additive for paint. Metallurgical Industry Softeners For further information, see attached Exposure Scenario.
Uses advised against	As a plasticiser in products for childrens toys and food contact applications.

1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	57450

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Lact. - H362
Environmental hazards	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

ALKANES, C14-17, CHLORO

2.2. Label elements

EC number 287-477-0

Hazard pictograms



Signal word Warning

Hazard statements
H362 May cause harm to breast-fed children.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements
P260 Do not breathe gas, fume, vapours or spray.
P263 Avoid contact during pregnancy and while nursing.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P391 Collect spillage.
P501 Dispose of contents/ container in accordance with local regulations.

Supplemental label information
EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name ALKANES, C14-17, CHLORO
REACH registration number 01-2119519269-33-XXXX
EU index number 602-095-00-X
CAS number 85535-85-9
EC number 287-477-0
Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse nose and mouth with water. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention if any discomfort continues.

Skin contact Remove affected person from source of contamination. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Get medical attention if any discomfort continues.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

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

ALKANES, C14-17, CHLORO

General information	May cause harm to breast-fed children.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Eye contact	May cause temporary eye irritation.

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

Notes for the doctor	Treat symptomatically. If in doubt, get medical attention promptly.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with the following media: Water spray. Carbon dioxide or dry powder.
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	When heated and in case of fire, toxic vapours/gases may be formed.
Hazardous combustion products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen chloride (HCl). Oxides of the following substances: Carbon.

5.3. Advice for firefighters

Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Provide adequate ventilation. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes.
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6.2. Environmental precautions

Environmental precautions	Very toxic to aquatic life with long lasting effects. Do not discharge into drains or watercourses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.
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6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Stop leak if safe to do so. Absorb spillage with inert, damp, non-combustible material. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Take care as floors and other surfaces may become slippery.
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6.4. Reference to other sections

Reference to other sections	Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see Section 13.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions	Provide adequate ventilation. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Avoid the spillage or runoff entering drains, sewers or watercourses.
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7.2. Conditions for safe storage, including any incompatibilities

ALKANES, C14-17, CHLORO

Storage precautions

Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from sunlight. Store at temperatures not exceeding 40°C. Store away from the following materials: Strong oxidising agents. Alkali metals. Alkaline earth metals. Iron. Zinc. Aluminium.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Ingredient comments

No exposure limits known for ingredient(s).

DNEL

Industry - Inhalation; Long term systemic effects: 6.7 mg/m³
 Industry - Dermal; Long term systemic effects: 47.9 mg/kg/day
 Consumer - Oral; Long term systemic effects: 0.58 mg/kg/day
 Consumer - Inhalation; Long term systemic effects: 2.0 mg/m³
 Consumer - Dermal; Long term systemic effects: 28.75 mg/kg/day

PNEC

- Fresh water; 1 µg/l
 - marine water; 0.2 µg/l
 - STP; 80 mg/l
 - Sediment (Freshwater); 5 mg/kg
 - Sediment (Marinewater); 1 mg/kg
 - Soil; 10.5 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Tight-fitting safety glasses. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. The selected gloves should have a breakthrough time of at least 8 hours. Nitrile rubber. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

When using do not eat, drink or smoke. Wash at the end of each work shift and before eating, smoking and using the toilet. Remove contaminated clothing and protective equipment before entering eating areas. Eye wash facilities and emergency shower must be available when handling this product.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. If ventilation is inadequate, suitable respiratory protection must be worn. Particulate filter, type P2. EN 136/140/141/145/143/149

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless.
Odour	Slight.
Odour threshold	No information available.
pH	Not applicable.
Melting point	-40 - +27°C
Pour Point	No information available.
Freezing Point	No information available.
Initial boiling point and range	> 200°C
Flash point	200°C
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	Not applicable.
Other flammability	No information available.
Vapour pressure	0.00027 Pa @ 20°C
Vapour density	No information available.
Relative density	1.075 - 1.45 @ 25°C
Bulk density	Not applicable.
Solubility(ies)	Insoluble in water. Soluble in the following materials: aromatic hydrocarbons Solvent. Esters. Ketones.
Partition coefficient	log Kow: 7
Auto-ignition temperature	No information available.
Decomposition Temperature	~ 200°C
Viscosity	25 - 1200 mm ² /s @ 40°C
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	Not available.
Refractive index	No information available.
Particle size	Not applicable.
Molecular weight	No information available.

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Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	The following materials may react with the product: Alkali metals. Alkaline earth metals. Iron. Zinc. Aluminium.
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10.4. Conditions to avoid

Conditions to avoid	Avoid excessive heat for prolonged periods of time. Avoid exposure to high temperatures or direct sunlight. Keep at temperature not exceeding 40°C.
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10.5. Incompatible materials

Materials to avoid	Strong oxidising agents.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen chloride (HCl). Oxides of the following substances: Carbon.
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD ₅₀ mg/kg)	2,000.0
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Species	Rat
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Notes (oral LD ₅₀)	LD ₅₀ > 2000 mg/kg/day, Oral, Rat
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Acute toxicity - dermal

Acute toxicity dermal (LD ₅₀ mg/kg)	2,000.0
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Species	Rabbit
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Notes (dermal LD ₅₀)	Based on available data the classification criteria are not met.
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Acute toxicity - inhalation

Acute toxicity inhalation (LC ₅₀ vapours mg/l)	48.0
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Species	Rat
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Notes (inhalation LC ₅₀)	Based on available data the classification criteria are not met.
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ATE inhalation (vapours mg/l)	48.0
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Skin corrosion/irritation

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Skin corrosion/irritation	Repeated exposure may cause skin dryness or cracking.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	May cause temporary eye irritation.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	Based on available data the classification criteria are not met.
<u>Skin sensitisation</u>	
Skin sensitisation	Based on available data the classification criteria are not met.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Based on available data the classification criteria are not met.
<u>Carcinogenicity</u>	
Carcinogenicity	Based on available data the classification criteria are not met.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Based on available data the classification criteria are not met.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	Based on available data the classification criteria are not met.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	Based on available data the classification criteria are not met.
<u>Aspiration hazard</u>	
Aspiration hazard	Based on available data the classification criteria are not met.
<u>Inhalation</u>	
Inhalation	Gas or vapour in high concentrations may irritate the respiratory system.
<u>Ingestion</u>	
Ingestion	May cause discomfort if swallowed.
<u>Skin contact</u>	
Skin contact	Repeated exposure may cause skin dryness or cracking.
<u>Eye contact</u>	
Eye contact	May cause temporary eye irritation.
<u>Acute and chronic health hazards</u>	
Acute and chronic health hazards	May cause harm to breast-fed children.

SECTION 12: Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

12.1. Toxicity

Toxicity Very toxic to aquatic organisms.

Acute aquatic toxicity

LE(C)₅₀ $0.001 < L(E)C_{50} \leq 0.01$

M factor (Acute) 100

Acute toxicity - fish LC₅₀, 96 hours: > 5000 mg/l,

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.006 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 96 hours: > 3.2 mg/l, Selenastrum capricornutum

Chronic aquatic toxicity

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M factor (Chronic) 10

Chronic toxicity - aquatic NOEC, 21 days: 0.01 mg/l, Daphnia magna
invertebrates LOEC, 21 days: 0.018 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability The product is not expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential The product contains potentially bioaccumulating substances. BCF: < 2000,

Partition coefficient log Kow: 7

12.4. Mobility in soil

Mobility The product is insoluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Do not puncture or incinerate, even when empty. 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.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

14.1. UN number

UN No. (ADR/RID) 3082

UN No. (IMDG) 3082

UN No. (ICAO) 3082

UN No. (ADN) 3082

14.2. UN proper shipping name

Proper shipping name (ADR/RID) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKANES, C14-17, CHLORO)

Proper shipping name (IMDG) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKANES, C14-17, CHLORO)

Proper shipping name (ICAO) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKANES, C14-17, CHLORO)

Proper shipping name (ADN) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKANES, C14-17, CHLORO)

14.3. Transport hazard class(es)

ADR/RID class 9

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ADR/RID classification code	M6
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	•3Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(-)

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 Not applicable.

Annex II of MARPOL 73/78 and the IBC Code

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). 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). Commission Regulation (EU) No 2015/830 of 28 May 2015. This product may impact SEVESO storage regulations.
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Seveso Directive - Control of major accident hazards E1

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

Canada - DSL/NDSL

All the ingredients are listed or exempt.

US - TSCA

All the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - ENCS

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

Taiwan - TCSI

All the ingredients are listed or exempt.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

02/08/2022

Version number

4.000

Supersedes date

05/11/2019

SDS number

57450

ALKANES, C14-17, CHLORO**SDS status**

Approved.

Hazard statements in full

H362 May cause harm to breast-fed children.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Signature

Lisa Bland

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



Exposure scenario Manufacture of MCCPs

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Manufacture of MCCPs
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).
Sector of use	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC1 Manufacture of the substance
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.

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

Product characteristics

Physical state	Low volatile liquid
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Amounts used

Manufacture of MCCPs

Annual amount used in the EU: 4000 tonnes
 Fraction of EU tonnage used in region: 0.167
 Fraction of Regional tonnage used locally: 1
 Annual site tonnage: 6680 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.000007
Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
 Estimated substance removal from wastewater via domestic sewage treatment: 93%

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.
 Laboratory activities Provide the operation with a properly sited receiving hood.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Manufacture of MCCPs

Wear suitable gloves tested to EN374.

Bulk transfers

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental exposure	Fresh water: Exposure 0.327 µg/L, PNEC 1 µg/L, RCR 0.327 freshwater sediment: Exposure 4.190 mg/kg, PNEC 5 mg/kg, RCR 0.837 Marine water: Exposure 0.0339 µg/L, PNEC 0.2 µg/L, RCR 0.170 marine sediment: Exposure 0.435 mg/kg, PNEC 1 mg/kg, RCR 0.435 Soil: Exposure 0.079 mg/kg, PNEC 10.5 mg/kg, RCR 0.0075 STP: Exposure 0.005 mg/l, PNEC 80 mg/l, RCR 0.00007

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method	EUSES v2.1
Exposure	Worker - dermal: Exposure 3.5 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.07 Worker - inhalation: Exposure 0.051 mg/m³, DNEL 6.7 mg/m³, RCR 0.008

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

PVC and Rubber (Plasticizer / Flame retardants); Formulation

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	PVC and Rubber (Plasticizer / Flame retardants); Formulation
Process scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU11 Manufacture of rubber products SU12 Manufacture of plastics products, including compounding and conversion

Environment

Environmental release category	ERC3 Formulation into solid matrix
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Worker

Process category	PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Low volatile liquid
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PVC and Rubber (Plasticizer / Flame retardants); Formulation

Amounts used

Annual amount used in the EU: 21600 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.05
 Annual site tonnage: 110 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.00005
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.00005
Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
 Estimated substance removal from wastewater via domestic sewage treatment: 93%

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.
 Laboratory activities Provide the operation with a properly sited receiving hood.

PVC and Rubber (Plasticizer / Flame retardants); Formulation

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.
Bulk transfers
Drum/batch transfers
Transport
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure
Fresh water: Exposure 0.0711 µg/L, PNEC 1 µg/L, RCR 0.071
freshwater sediment: Exposure 0.911 mg/kg, PNEC 5 mg/kg, RCR 0.182
Marine water: Exposure 0.00838 µg/L, PNEC 0.2 µg/L, RCR 0.042
marine sediment: Exposure 0.107 mg/kg, PNEC 1 mg/kg, RCR 0.107
Soil: Exposure 0.388 mg/kg, PNEC 10.5 mg/kg, RCR 0.037
STP: Exposure 0.0006 mg/l, PNEC 80 mg/l, RCR 0.000008

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure
Worker - dermal: Exposure 7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.15
Worker - inhalation: Exposure 0.008 mg/m³, DNEL 6.7 mg/m³, RCR 0.001

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario PVC and Rubber Processing

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	PVC and Rubber Processing
Main sector	SU3 Industrial uses
Sector of use	SU11 Manufacture of rubber products SU12 Manufacture of plastics products, including compounding and conversion

Environment

Environmental release category	ERC5 Use at industrial site leading to inclusion into/onto article
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Worker

PVC and Rubber Processing

Process category	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC17 Lubrication at high energy conditions in metal working operations PROC21 Low energy manipulation and handling of substances bound in/on materials or articles PROC23 Open processing and transfer operations at substantially elevated temperature PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state Low volatile liquid

Amounts used

Annual amount used in the EU: 21600 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.05
 Annual site tonnage: 110 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.00005

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.00005

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

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.

Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
 Estimated substance removal from wastewater via domestic sewage treatment: 93%

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

PVC and Rubber Processing

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

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

Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure
Fresh water: Exposure 0.0711 µg/L, PNEC 1 µg/L, RCR 0.071
freshwater sediment: Exposure 0.911 mg/kg, PNEC 5 mg/kg, RCR 0.182
Marine water: Exposure 0.00838 µg/L, PNEC 0.2 µg/L, RCR 0.042
marine sediment: Exposure 0.107 mg/kg, PNEC 1 mg/kg, RCR 0.107
Soil: Exposure 0.388 mg/kg, PNEC 10.5 mg/kg, RCR 0.037
STP: Exposure 0.0006 mg/l, PNEC 80 mg/l, RCR 0.000008

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure
Worker - dermal: Exposure 7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.15
Worker - inhalation: Exposure 1.0 mg/m³, DNEL 6.7 mg/m³, RCR 0.15
Worst case assumption

PVC and Rubber Processing

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Adhesives and Sealants (Plasticizer / Flame Retardants): Formulation, Industrial and Professional Use

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Adhesives and Sealants (Plasticizer / Flame Retardants): Formulation, Industrial and Professional Use
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)
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Worker

Process category	PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Low volatile liquid
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Amounts used

Adhesives and Sealants (Plasticizer / Flame Retardants): Formulation, Industrial and Professional Use

Annual amount used in the EU: 11200 tonnes
 Fraction of EU tonnage used in region: 0.1
 ERC2 Formulation into mixture
 ERC5 Use at industrial site leading to inclusion into/onto article
 Fraction of Regional tonnage used locally: 1
 Annual site tonnage: 1120 tonnes
 ERC8c Widespread use leading to inclusion into/onto article (indoor)
 ERC8f Widespread use leading to inclusion into/onto article (outdoor)
 Fraction of Regional tonnage used locally: 0.002
 Annual site tonnage: 2.24 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

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

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Adhesives and Sealants (Plasticizer / Flame Retardants): Formulation, Industrial and Professional Use

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.

Laboratory activities Provide the operation with a properly sited receiving hood.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure

Fresh water: Exposure 0.0377 µg/L, PNEC 1 µg/L, RCR 0.038
 freshwater sediment: Exposure 0.483 mg/kg, PNEC 5 mg/kg, RCR 0.097
 Marine water: Exposure 0.00504 µg/L, PNEC 0.2 µg/L, RCR 0.025
 marine sediment: Exposure 0.065 mg/kg, PNEC 1 mg/kg, RCR 0.065
 Soil: Exposure 0.079 mg/kg, PNEC 10.5 mg/kg, RCR 0.0075
 STP: Exposure 0.00000002 mg/l, PNEC 80 mg/l, RCR 0.0000000002

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure

Worker - dermal: Exposure 0.7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.01
 Worker - inhalation: Exposure 0.051 mg/m³, DNEL 6.7 mg/m³, RCR 0.008

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Metal Working Fluids Formulation

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Metal Working Fluids Formulation
Process scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU10 Formulation [mixing] of preparations and/or re-packaging SU15 Manufacture of fabricated metal products, except machinery and equipment

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Metal Working Fluids Formulation

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state Low volatile liquid

Amounts used

Annual amount used in the EU: 2800 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.36
 Annual site tonnage: 101 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.000003
Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
 Estimated substance removal from wastewater via domestic sewage treatment: 93%

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Metal Working Fluids Formulation

Physical state Liquid, vapour pressure < 0.5 kPa at STP

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

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

Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.
Laboratory activities Provide the operation with a properly sited receiving hood.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.
Drum/batch transfers
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure Fresh water: Exposure 0.0395 µg/L, PNEC 1 µg/L, RCR 0.040
freshwater sediment: Exposure 0.507 mg/kg, PNEC 5 mg/kg, RCR 0.101
Marine water: Exposure 0.00522 µg/L, PNEC 0.2 µg/L, RCR 0.026
marine sediment: Exposure 0.067 mg/kg, PNEC 1 mg/kg, RCR 0.067
Soil: Exposure 0.096 mg/kg, PNEC 10.5 mg/kg, RCR 0.009
STP: Exposure 0.00004 mg/l, PNEC 80 mg/l, RCR 0.0000004

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure Worker - dermal: Exposure 0.7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.01
Worker - inhalation: Exposure 0.051 mg/m³, DNEL 6.7 mg/m³, RCR 0.008

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

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 Emulsion Metal Working Fluid

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use of Emulsion Metal Working Fluid
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC17 Lubrication at high energy conditions in metal working operations
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Low volatile liquid
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Amounts used

Use of Emulsion Metal Working Fluid

Annual amount used in the EU: 924 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.0014
 Annual site tonnage: 0.125 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.06
Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
Concentration details Covers concentrations up to 100 %.
 Maximum concentration after dilution for use: 0.25 %

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.
 Laboratory activities Provide the operation with a properly sited receiving hood.

Organisational measures to prevent/limit releases, dispersion and exposure

Use of Emulsion Metal Working Fluid

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure Fresh water: Exposure 0.0857 µg/L, PNEC 1 µg/L, RCR 0.086
freshwater sediment: Exposure 1.100 mg/kg, PNEC 5 mg/kg, RCR 0.220
Marine water: Exposure 0.00984 µg/L, PNEC 0.2 µg/L, RCR 0.049
marine sediment: Exposure 0.126 mg/kg, PNEC 1 mg/kg, RCR 0.126
Soil: Exposure 0.522 mg/kg, PNEC 10.5 mg/kg, RCR 0.05
STP: Exposure 0.0009 mg/l, PNEC 80 mg/l, RCR 0.00001

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure Worker - dermal: Exposure 3 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.06
Worker - inhalation: Exposure 0.08 mg/m³, DNEL 6.7 mg/m³, RCR 0.001

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

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 Metal Working Fluids (Neat Oil Use)

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use of Metal Working Fluids (Neat Oil Use)
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC17 Lubrication at high energy conditions in metal working operations
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Low volatile liquid
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Amounts used

Use of Metal Working Fluids (Neat Oil Use)

Annual amount used in the EU: 1876 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.0133
 Annual site tonnage: 2.5 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

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

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
Concentration details Covers concentrations up to 100 %.
 Maximum concentration after dilution for use: 5 - 70 %

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.
 Laboratory activities Provide the operation with a properly sited receiving hood.

Organisational measures to prevent/limit releases, dispersion and exposure

Use of Metal Working Fluids (Neat Oil Use)

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.
Limit the substance in product to 10%.
, or:
Gloves should have a breakthrough time of 8 hours.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure Fresh water: Exposure 0.192 µg/L, PNEC 1 µg/L, RCR 0.192
freshwater sediment: Exposure 2.460 mg/kg, PNEC 5 mg/kg, RCR 0.492
Marine water: Exposure 0.0205 µg/L, PNEC 0.2 µg/L, RCR 0.102
marine sediment: Exposure 0.262 mg/kg, PNEC 1 mg/kg, RCR 0.262
Soil: Exposure 1.500 mg/kg, PNEC 10.5 mg/kg, RCR 0.14
STP: Exposure 0.003 mg/l, PNEC 80 mg/l, RCR 0.00004

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure Covers concentrations up to 10 %.
Worker - dermal: Exposure 30 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.63
Worker - inhalation: Exposure 0.3 mg/m³, DNEL 6.7 mg/m³, RCR 0.044
Covers concentrations up to 70 %.
Use of gloves has been considered additionally.
Worker - dermal: Exposure 41.7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.87
Worker - inhalation: Exposure 2.4 mg/m³, DNEL 6.7 mg/m³, RCR 0.35

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Textile Flame Retardant and Waterproofing: Formulation, Industrial Use

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Textile Flame Retardant and Waterproofing: Formulation, Industrial Use
Process scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging SU12 Manufacture of plastics products, including compounding and conversion SU5 Manufacture of textiles, leather, fur

Environment

Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article
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Worker

Process category	PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Low volatile liquid
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Amounts used

Textile Flame Retardant and Waterproofing: Formulation, Industrial Use

Annual amount used in the EU: 2400 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.002
 Annual site tonnage: 4.8 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

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

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
 Estimated substance removal from wastewater via domestic sewage treatment: 93%

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Textile Flame Retardant and Waterproofing: Formulation, Industrial Use

Risk management measures

Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental exposure	Fresh water: Exposure 0.335 µg/L, PNEC 1 µg/L, RCR 0.335 freshwater sediment: Exposure 4.290 mg/kg, PNEC 5 mg/kg, RCR 0.858 Marine water: Exposure 0.0348 µg/L, PNEC 0.2 µg/L, RCR 0.174 marine sediment: Exposure 0.445 mg/kg, PNEC 1 mg/kg, RCR 0.445 Soil: Exposure 2.820 mg/kg, PNEC 10.5 mg/kg, RCR 0.27 STP: Exposure 0.006 mg/l, PNEC 80 mg/l, RCR 0.00007

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method	EUSES v2.1
Exposure	Formulation or re-packing Worker - dermal: Exposure 0.7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.01 Worker - inhalation: Exposure 0.051 mg/m ³ , DNEL 6.7 mg/m ³ , RCR 0.008 Industrial use. Worker - dermal: Exposure 1.74 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.03 Worker - inhalation: Exposure 0.051 mg/m ³ , DNEL 6.7 mg/m ³ , RCR 0.008

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Paint Formulation, Industrial and Professional Use

Identification

Product name	ALKANES, C14-17, CHLORO
REACH registration number	01-2119519269-33-XXXX
CAS number	85535-85-9
EC number	287-477-0
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Paint Formulation, Industrial and Professional Use
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging SU12 Manufacture of plastics products, including compounding and conversion

Environment

Environmental release category	ERC5 Use at industrial site leading to inclusion into/onto article ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC11 Non industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles
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Paint Formulation, Industrial and Professional Use

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

Product characteristics

Physical state Low volatile liquid

Amounts used

Annual amount used in the EU: 2000 tonnes
 Fraction of EU tonnage used in region: 0.1
 Fraction of Regional tonnage used locally: 0.015
 Annual site tonnage: 3 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.001
 Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.004
 Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day
 Local freshwater dilution factor: 10

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.
 Technical measures Prevent environmental discharge consistent with regulatory requirements.
 Assumes a good basic standard of occupational hygiene is implemented.
 STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

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

Air Waste gas treatment by thermal oxidation. , or: Waste gas treatment by catalytic oxidation.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Dispose of waste in accordance with environmental legislation.

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

Product characteristics

Physical state Liquid, vapour pressure < 0.5 kPa at STP
 Concentration details Covers concentrations up to 100 %. Concentration of substance in product: 5-15%

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).
 Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc.
 Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Paint Formulation, Industrial and Professional Use

Technical protective measures Provide extract ventilation to points where emissions occur. Ensure samples are obtained under containment or extract ventilation.

Laboratory activities Provide the operation with a properly sited receiving hood.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.

PROC7 Industrial spraying

PROC11 Non industrial spraying

Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

Environmental exposure Fresh water: Exposure 0.093 µg/L, PNEC 1 µg/L, RCR 0.093
freshwater sediment: Exposure 1.200 mg/kg, PNEC 5 mg/kg, RCR 0.239
Marine water: Exposure 0.0106 µg/L, PNEC 0.2 µg/L, RCR 0.053
marine sediment: Exposure 0.136 mg/kg, PNEC 1 mg/kg, RCR 0.136
Soil: Exposure 0.593 mg/kg, PNEC 10.5 mg/kg, RCR 0.056
STP: Exposure 0.001 mg/l, PNEC 80 mg/l, RCR 0.00001

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. If scaling reveals a condition of unsafe use (i.e. RCRs > 1), additional RMM or a site-specific chemical safety assessment is required.

3. Exposure estimation (Health 1)

Assessment method EUSES v2.1

Exposure Formulation or re-packing
Worker - dermal: Exposure 0.7 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.01
Worker - inhalation: Exposure 0.051 mg/m³, DNEL 6.7 mg/m³, RCR 0.008
Industrial use.
, or:
Professional use.
Worker - dermal: Exposure 2.1 mg/kg/day, DNEL 47.9 mg/kg/day, RCR 0.04
Worker - inhalation: Exposure 0.19 mg/m³, DNEL 6.7 mg/m³, RCR 0.028

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.