



SAFETY DATA SHEET

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

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

1.1. Product identifier

Product name	HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS
Product number	58038
Synonyms; trade names	EXXSOL DSP 100/140
REACH registration number	01-2119473851-33-XXXX
EC number	920-750-0

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

Identified uses	Solvent.
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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@UnivarSolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	58038

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

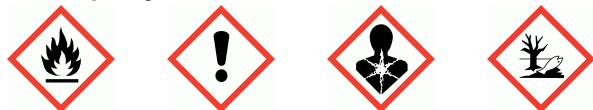
Classification (EC 1272/2008)

Physical hazards	Flam. Liq. 2 - H225
Health hazards	STOT SE 3 - H336 Asp. Tox. 1 - H304
Environmental hazards	Aquatic Chronic 2 - H411

2.2. Label elements

EC number	920-750-0
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Hazard pictograms



Signal word

Danger

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

Hazard statements	H225 Highly flammable liquid and vapour. H336 May cause drowsiness or dizziness. H304 May be fatal if swallowed and enters airways. 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. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P331 Do NOT induce vomiting.
Supplemental label information	EUH066 Repeated exposure may cause skin dryness or cracking.
Contains	HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS, CYCLOHEXANE

2.3. Other hazards

Product is a static accumulator Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back.
 This substance is not classified as PBT or vPvB according to current EU criteria.
 May cause eye and respiratory system irritation. Central nervous system depression.

SECTION 3: Composition/information on ingredients

3.1. Substances

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS			100%
CAS number: —	EC number: 920-750-0	REACH registration number: 01-2119473851-33-XXXX	
Classification Flam. Liq. 2 - H225 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411			

CYCLOHEXANE			2%
CAS number: 110-82-7	EC number: 203-806-2	REACH registration number: 01-2119463273-41-XXXX	
M factor (Acute) = 1	M factor (Chronic) = 1		
Classification Flam. Liq. 2 - H225 Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410			

The full text for all hazard statements is displayed in Section 16.

Product name	HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS
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HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

REACH registration number 01-2119473851-33-XXXX

EC number 920-750-0

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

General information	First aid personnel should wear appropriate protective equipment during any rescue. Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk.
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. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation. If breathing stops, provide artificial respiration. Get medical attention immediately.
Ingestion	Rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention immediately.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if symptoms are severe or persist after washing.
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 if symptoms are severe or persist after washing.

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

Inhalation	Gas or vapour in high concentrations may irritate the respiratory system. May cause drowsiness or dizziness. Vapours in high concentrations are anaesthetic. Symptoms following overexposure may include the following: Headache. Fatigue. Drowsiness. Central nervous system depression. Arrhythmia (deviation from normal heart beat).
Ingestion	Aspiration hazard if swallowed. May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis. Development of symptoms may be delayed for 24 to 48 hours. Keep affected person under observation.
Skin contact	Repeated exposure may cause skin dryness or cracking. Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.
Eye contact	Vapour or spray in the eyes may cause irritation and smarting.

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

Notes for the doctor	No specific recommendations. Treat symptomatically. Development of symptoms may be delayed for 24 to 48 hours. Keep affected person under observation.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
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

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

Specific hazards Highly flammable liquid and vapour. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Containers can burst violently or explode when heated, due to excessive pressure build-up. Toxic to aquatic life with long lasting effects. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO₂). Carbon monoxide (CO). Acrid smoke or fumes. Toxic gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Evacuate area. No action shall be taken without appropriate training or involving any personal risk. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Control run-off water by containing and keeping it out of sewers and watercourses. Contain and collect extinguishing water.

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 No action shall be taken without appropriate training or involving any personal risk. Follow precautions for safe handling described in this safety data sheet. Highly flammable liquid and vapour. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Approach the spillage from upwind. Evacuate area. Keep unnecessary and unprotected personnel away from the spillage. Provide adequate ventilation. Avoid inhalation of vapours and contact with skin and eyes. Do not touch or walk into spilled material. Take care as floors and other surfaces may become slippery. No smoking, sparks, flames or other sources of ignition near spillage. Eliminate all sources of ignition. Use only non-sparking tools.

6.2. Environmental precautions

Environmental precautions Toxic to aquatic life with long lasting effects. Highly flammable liquid and vapour. Avoid the spillage or runoff entering drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Highly flammable liquid and vapour. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Use water spray to reduce vapours. Toxic to aquatic life with long lasting effects. Eliminate all sources of ignition. Take precautionary measures against static discharge. No smoking, sparks, flames or other sources of ignition near spillage. Avoid the spillage or runoff entering drains, sewers or watercourses. Absorb spillage with inert, damp, non-combustible material. Collect and place in suitable waste disposal containers and seal securely. Use only non-sparking tools. Take care as floors and other surfaces may become slippery. Clean contaminated objects and areas thoroughly, observing environmental regulations.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. Collect and dispose of spillage as indicated in Section 13.

SECTION 7: Handling and storage

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7.1. Precautions for safe handling

Usage precautions

Handle all packages and containers carefully to minimise spills. Wear protective clothing as described in Section 8 of this safety data sheet. Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid inhalation of vapours and contact with skin and eyes. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Vapours may form explosive mixtures with air. Product is a static accumulator. Eliminate all sources of ignition. Earth container and transfer equipment to eliminate sparks from static electricity. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Use only non-sparking tools.

Advice on general occupational hygiene

Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Provide eyewash station and safety shower.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions

Product is a static accumulator. Earth container and transfer equipment to eliminate sparks from static electricity. Storage tanks and other containers must be earthed. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Outside or detached storage preferred. Avoid excessive heat for prolonged periods of time. Container must be kept tightly closed when not in use. Loosen closure cautiously before opening. Suitable container materials: Carbon steel. Stainless steel. Polytetrafluoroethylene (PTFE, Teflon). Polyethylene. Zinc. Neoprene. Unsuitable container materials: Butyl rubber. Rubber (natural, latex). Store away from the following materials: Oxidising materials.

Storage class

Flammable liquid storage.

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

Occupational exposure limits

CYCLOHEXANE

Long-term exposure limit (8-hour TWA): WEL 100 ppm 350 mg/m³

Short-term exposure limit (15-minute): WEL 300 ppm 1050 mg/m³

WEL = Workplace Exposure Limit

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

Ingredient comments

Hydrocarbons. Vapour 1200 mg/m³, 260ppm TWA, Manuf. data

DNEL

Workers - Dermal; Long term systemic effects: 773 mg/kg
Workers - Inhalation; Long term systemic effects: 2035 mg/m³
Consumer - Dermal; Long term systemic effects: 699 mg/kg
Consumer - Inhalation; Long term systemic effects: 608 mg/m³
Consumer - Oral; Long term systemic effects: 699 mg/kg

CYCLOHEXANE (CAS: 110-82-7)

Ingredient comments

WEL = Workplace Exposure Limits

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

DNEL

Workers - Inhalation; Long term systemic effects: 700 mg/m³
 Workers - Inhalation; Short term systemic effects: 700 mg/m³
 Workers - Inhalation; Long term local effects: 700 mg/m³
 Workers - Inhalation; Long term local effects: 700 mg/m³
 Workers - Dermal; Long term systemic effects: 2016 mg/kg/day
 General population - Inhalation; Long term systemic effects: 206 mg/m³
 General population - Inhalation; Short term systemic effects: 412 mg/m³
 General population - Inhalation; Long term local effects: 206 mg/m³
 General population - Inhalation; Short term local effects: 412 mg/m³
 General population - Dermal; Long term systemic effects: 1186 mg/kg/day
 General population - Oral; Long term systemic effects: 59.4 mg/kg/day

PNEC

- Fresh water; 0.207 mg/l
 - marine water; 0.207 mg/l
 - Intermittent release; 0.207 mg/l
 - STP; 3.24 mg/l
 - Sediment (Freshwater); 3.627 mg/kg
 - Sediment (Marinewater); 3.627 mg/kg
 - Soil; 2.99 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapour or mist. Avoid inhalation of vapours and contact with skin and eyes. Use explosion-proof electrical equipment. Provide eyewash station and safety shower.

Eye/face protection

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

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, gloves should comply with European Standard EN374. The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. For exposure up to 8 hours, wear gloves made of the following material: Nitrile rubber.

Protective gloves should have a minimum thickness of 0.38 mm. Frequent changes are recommended.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact. Wear fire/flammable resistant/retardant clothing. For the greatest protection, clothing should include anti-static overalls, boots and gloves.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Care should be taken to avoid contact with contaminants when removing contaminated clothing. Wash contaminated clothing before reuse.

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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. Wear a respirator fitted with the following cartridge: Gas filter, type A2.
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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	No information available.
Melting point	No information available.
Initial boiling point and range	106 - 140°C @ 760 mm Hg
Flash point	6°C Tag closed cup.
Evaporation rate	2 (butyl acetate = 1)
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 0.9 % Upper flammable/explosive limit: 7.0 %
Other flammability	No information available.
Vapour pressure	2 kPa @ 20°C
Vapour density	3.7 @ 101 kPa
Relative density	0.74 @ 15°C
Bulk density	740 kg/m ³
Solubility(ies)	Immiscible with water.
Partition coefficient	log Pow: > 4 Estimated value.
Auto-ignition temperature	256°C
Decomposition Temperature	No information available.
Viscosity	0.6 cSt @ 40°C 0.8 cSt @ 20°C
Explosive properties	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Molecular weight	107 g/mol
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SECTION 10: Stability and reactivity

10.1. Reactivity

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

Reactivity No test data specifically related to reactivity available for this product or its ingredients. See the other subsections of this section for further details.

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 Flammable liquid and vapour. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back.
Will not polymerise.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition. Avoid excessive heat for prolonged periods of time. Containers can burst violently or explode when heated, due to excessive pressure build-up. Take precautionary measures against static discharge.

10.5. Incompatible materials

Materials to avoid Avoid contact with the following materials: Oxidising materials.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion products may include the following substances: Carbon monoxide (CO). Carbon dioxide (CO₂). Toxic gases or vapours. Acid smoke or fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ > 5820 mg/kg, Oral, Rat OECD 401

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 2920 mg/kg, Dermal, Rabbit OECD 402

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LC₅₀ (4h) > 23.3 mg/l, Inhalation, Vapour, Rat OECD 403

Skin corrosion/irritation

Skin corrosion/irritation Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.
Slightly irritating. May cause temporary eye irritation.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation Not sensitising. OECD 406

Germ cell mutagenicity

Genotoxicity - in vitro This substance has no evidence of mutagenic properties.

Genotoxicity - in vivo No information available.

Carcinogenicity

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Carcinogenicity Based on available data the classification criteria are not met. Carcinogenicity in humans is not expected.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.
This substance has no evidence of toxicity to reproduction. Read-across data.

Reproductive toxicity - development Based on available data the classification criteria are not met.
This substance has no evidence of toxicity to reproduction. Read-across data.

Specific target organ toxicity - single exposure

STOT - single exposure May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard May be fatal if swallowed and enters airways.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system. May cause drowsiness or dizziness. Vapours in high concentrations are anaesthetic. Symptoms following overexposure may include the following: Headache. Fatigue. Dizziness. Central nervous system depression. Arrhythmia (deviation from normal heart beat).

Ingestion Aspiration hazard if swallowed. May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis. Development of symptoms may be delayed for 24 to 48 hours. Keep affected person under observation.

Skin contact Repeated exposure may cause skin dryness or cracking. Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.

Eye contact Vapour or spray in the eyes may cause irritation and smarting.

SECTION 12: Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

12.1. Toxicity

Toxicity Toxic to aquatic life with long lasting effects.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: > 13.4 mg/l, *Oncorhynchus mykiss* (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 3.0 mg/l, *Daphnia magna*
Read-across data.

Acute toxicity - aquatic plants NOEC, 72 hours: 10 mg/l, *Pseudokirchneriella subcapitata*
Read-across data.
EC₅₀, 72 hour: 10 - 30 mg/l, *Pseudokirchneriella subcapitata*
Read-across data.

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates NOEC, 21 day: 0.17 mg/l, *Daphnia magna*
Read-across data.
LOEC, 21 day: 0.32 mg/l, *Daphnia magna*
Read-across data.

12.2. Persistence and degradability

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

Persistence and degradability	The product is readily biodegradable.
Phototransformation	Transformation due to photolysis not expected to be significant.
Stability (hydrolysis)	Transformation due to hydrolysis not expected to be significant
Biodegradation	Water - Degradation 98%: 28 days Read-across data.

12.3. Bioaccumulative potential

Bioaccumulative potential	Potentially bioaccumulating.
Partition coefficient	log Pow: > 4 Estimated value.

12.4. Mobility in soil

Mobility	The product is insoluble in water and will spread on the water surface. The product contains organic solvents which will evaporate easily from all surfaces.
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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.
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12.6. Other adverse effects

Other adverse effects	Not determined.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Waste is classified as hazardous waste. Empty containers or liners may retain some product residues and hence be potentially hazardous. Do not puncture or incinerate, even when empty. Do not pressurise, cut, weld, drill, grind or otherwise expose containers to heat or sources of ignition. Containers should be thoroughly emptied before disposal because of the risk of an explosion. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
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

14.1. UN number

UN No. (ADR/RID)	3295
UN No. (IMDG)	3295
UN No. (ICAO)	3295
UN No. (ADN)	3295

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	HYDROCARBONS, LIQUID, N.O.S.
Proper shipping name (IMDG)	HYDROCARBONS, LIQUID, N.O.S. (CONTAINS HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS, CYCLOHEXANE)
Proper shipping name (ICAO)	HYDROCARBONS, LIQUID, N.O.S.
Proper shipping name (ADN)	HYDROCARBONS, LIQUID, N.O.S.

14.3. Transport hazard class(es)

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

ADR/RID class	3
ADR/RID classification code	F1
ADR/RID label	3
IMDG class	3
ICAO class/division	3
ADN class	3

Transport labels



14.4. Packing group

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

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-E, S-D
ADR transport category	2
Emergency Action Code	3YE
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 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

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

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.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

Canada - DSL/NDSL

All the ingredients are listed or exempt.
DSL

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.

Taiwan - TCSI

All the ingredients are listed or exempt.

SECTION 16: Other information

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

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	This is the first issue.
Revision date	02/10/2019
Version number	1.000
SDS number	58037
SDS status	Approved.

HYDROCARBONS, C7-C9, N-ALKANES, ISOALKANES, CYCLICS

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.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.

Signature

Jacq Pattinson



Exposure scenario Use in coatings - Consumer

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use in coatings - 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	PC1 Adhesives, sealants. PC4 Anti-freeze and de-icing products. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC15 Non-metal-surface treatment products. PC18 Ink and toners. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC31 Polishes and wax blends. PC34 Textile dyes and impregnating products PC5 Artists supply and hobby preparations. PC10 Building and construction preparations not covered elsewhere.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
SPERC	ESVOC SPERC 9.12c.v1

Use in coatings - Consumer

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 190 tonnes/year
Fraction of Regional tonnage used locally: 0.002

Frequency and duration of use

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): 98.5%
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1%
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.5%

Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 20000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 96.6%

Conditions and measures related to external treatment of waste for disposal

Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated. PC1_1 Glues, hobby use PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue) PC1_3 Glue from spray Covers concentrations up to 30 %. PC1_4 Sealants PC24_2 Pastes Covers concentrations up to 20 %. PC4_1 Washing car window Covers concentrations up to 1 %. PC4_2 Pouring into radiator PC18 Ink and toners. PC34 Textile dyes and impregnating products Covers concentrations up to 10 %. 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_2 Solvent-rich, high-solid, water-borne paint PC15 Non-metal-surface treatment products. Water-borne paint Covers concentrations up to 27.5 %. PC9a_3 Aerosol spray can PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC15 Non-metal-surface treatment products. Aerosol Paint remover Glue remover Wallpaper remover PC23 Leather treatment products PC24_3 Sprays PC31 Polishes and wax blends. Covers concentrations up to 50 %. PC9b_1 Fillers and putty PC9b_2 Plasters and floor equalisers Covers concentrations up to 2 %.

Amounts used

Use in coatings - Consumer

For each use event, covers use amounts up to 13800 g.

Unless otherwise stated.

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.

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)

PC31_2 Polishes, spray (furniture, shoes)

For each use event, covers use amounts up to 35 g.

PC9a_2 Solvent-rich, high-solid, water-borne paint

PC15 Non-metal-surface treatment products.

Water-borne paint

For each use event, covers use amounts up to 744 g.

PC9a_3 Aerosol spray can

PC15 Non-metal-surface treatment products.

Aerosol

For each use event, covers use amounts up to 215 g.

PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)

PC15 Non-metal-surface treatment products.

Paint remover

Wallpaper remover

Glue 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.

PC18 Ink and toners.

For each use event, covers use amounts up to 40 g.

PC23 Leather treatment products

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.

PC34 Textile dyes and impregnating products

For each use event, covers use amounts up to 115 g.

Frequency and duration of use

Use in coatings - Consumer

Covers use up to 365 day(s)/year.

Unless otherwise stated.

PC1_2 Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Covers use up to 1 day(s)/year.

PC1_3 Glue from spray

PC9a_2 Solvent-rich, high-solid, water-borne paint

PC24_3 Sprays

Covers use up to 6 day(s)/year.

PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Covers use up to 128 day(s)/year.

PC9a_3 Aerosol spray can

Covers use up to 2 day(s)/year.

PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover).

Covers use up to 3 days/year.

PC9b Fillers, putties, plasters, modelling clay.

Covers use up to 12 day(s)/year.

PC31_1 Polishes, wax/cream (floor, furniture, shoes)

Covers use up to 29 day(s)/year.

PC31_2 Polishes, spray (furniture, shoes)

Covers use up to 8 day(s)/year.

PC24_1 Liquids

Covers use up to 4 day(s)/year.

PC24_2 Pastes

Covers use up to 10 day(s)/year.

Covers use up to 1 times/day of use . Covers exposure up to 6 hours per event. Unless otherwise stated. PC1_1 Glues, hobby use PC1_3 Glue from spray PC9b_1 Fillers and putty Covers exposure up to 4 hours per event. PC1_4 Sealants PC34 Textile dyes and impregnating products Covers exposure up to 1 hours per event. PC4_1 Washing car window Covers exposure up to 0.02 hours per event. PC4_2 Pouring into radiator PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC24_1 Liquids PC24_3 Sprays Covers exposure up to 0.17 hours per event. PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC9a_3 Aerosol spray can PC15 Non-metal-surface treatment products. Aerosol PC31_2 Polishes, spray (furniture, shoes) Covers exposure up to 0.33 hours per event. PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9b_2 Plasters and floor equalisers PC15 Non-metal-surface treatment products. Paint remover Wallpaper remover Glue remover Covers exposure up to 2 hours per event. PC9a_2 Solvent-rich, high-solid, water-borne paint PC15 Non-metal-surface treatment products. Water-borne paint PC18 Ink and toners. Covers exposure up to 2.2 hours per event. PC31_1 Polishes, wax/cream (floor, furniture, shoes) Covers exposure up to 1.23 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts

Covers skin contact area up to 857.50 cm². Unless otherwise stated. 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 cm². PC4_2 Pouring into radiator PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) PC9a_2 Solvent-rich, high-solid, water-borne paint PC15 Non-metal-surface treatment products. Water-borne paint PC23 Leather treatment products PC24_3 Sprays PC31 Polishes and wax blends. Covers skin contact area up to 430 cm². PC18 Ink and toners. Covers skin contact area up to 71.4 cm². PC24_2 Pastes Covers skin contact area up to 468 cm².

Other given operational conditions affecting Non-industrial exposure

Temperature

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

Use in coatings - Consumer

Room size Covers use in room size of 20 m³. Unless otherwise stated. PC1_4 Sealants PC4_1 Washing car window PC4_2 Pouring into radiator PC9a_3 Aerosol spray can. PC15 Non-metal-surface treatment products. Aerosol PC24_1 Liquids Covers use in a one car garage (34 m³) under typical ventilation.

Ventilation rate 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)

Assessment method Used EUSES model.
The use is assessed to be safe.

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

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 Used ECETOC TRA model.
The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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 Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 190 tonnes/year
Fraction of Regional tonnage used locally: 0.002

Frequency and duration of use

Emission days: 365 days/year

Use as a fuel - Consumer

Other given operational conditions affecting environmental exposure

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

Environmental factors not influenced by risk management measures

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

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 20000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 96.6%

Conditions and measures related to external treatment of waste for disposal

Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated. PC13_1 Liquid: automotive refuelling Covers concentrations up to 25 %. PC13_2 Liquid: scooter refuelling Covers concentrations up to 30 %. PC13_3 Liquid: garden equipment - use PC13_4 Liquid: Garden equipment - Refuelling PC13_5 Liquid: lamp oil Covers concentrations up to 50 %.

Amounts used

PC13_1 Liquid: automotive refuelling
For each use event, covers use amounts up to 37500 g.
PC13_2 Liquid: scooter refuelling
For each use event, covers use amounts up to 3750 g.
PC13_3 Liquid: garden equipment - use
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.

Frequency and duration of use

PC13_1 Liquid: automotive refuelling
PC13_2 Liquid: scooter refuelling
PC13_5 Liquid: lamp oil
Covers use up to 52 day(s)/year.
PC13_3 Liquid: garden equipment - use
PC13_4 Liquid: Garden equipment - Refuelling
Covers use up to 26 day(s)/year.

Covers use up to 1 times/day of use . PC13_1 Liquid: automotive refuelling Covers exposure up to 0.05 hours per event. PC13_2 Liquid: scooter refuelling PC13_4 Liquid: Garden equipment - Refuelling Covers exposure up to 0.03 hours per event. PC13_3 Liquid: garden equipment - use Covers exposure up to 2 hours per event. PC13_5 Liquid: lamp oil Covers exposure up to 0.01 hours per event.

Human factors not influenced by risk management

Use as a fuel - Consumer

Potentially exposed body parts PC13_1 Liquid: automotive refuelling PC13_2 Liquid: scooter refuelling PC13_3 Liquid: garden equipment - use PC13_5 Liquid: lamp oil Covers skin contact area up to 210 cm².
PC13_4 Liquid: Garden equipment - Refuelling Covers skin contact area up to 420 cm².

Other given operational conditions affecting Non-industrial exposure

Setting Indoor/outdoor use.

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

Room size Covers use in room size of 100 m³. Unless otherwise stated. PC13_4 Liquid: Garden equipment - Refuelling Covers use in a one car garage (34 m³) under typical ventilation. PC13_5 Liquid: lamp oil Covers use in room size of 20 m³.

Ventilation rate Covers use under typical household ventilation.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

The use is assessed to be safe.

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 Cleaning Agent - Consumer

Identification

Product name	Cyclohexane
REACH registration number	01-2119457290-43-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use as a Cleaning Agent - 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 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 PC38 Welding and soldering products, flux products
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
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Use as a Cleaning Agent - Consumer

Concentration details Covers concentrations up to 100 %.

Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 190 tonnes/year
Fraction of Regional tonnage used locally: 0.002

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

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

Emission factor - water Release fraction to wastewater from wide dispersive use: 0.025

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

Environmental factors not influenced by risk management measures

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

Risk management measures

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 20000 m³/day
Estimated substance removal from wastewater via domestic sewage treatment: 96.6%

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.

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

Product characteristics

Physical state Liquid, vapour pressure > 10 kPa at STP

Concentration details Covers concentrations up to 100 %. Unless otherwise stated. PC3_1 Air care, instant action (aerosol sprays) PC4_3 Lock de-icer Covers concentrations up to 50 %. PC3_2 Air care, continuous action (solid and liquid) Covers concentrations up to 10 %. PC4_1 Washing car window PC9b_3 Modelling clay Covers concentrations up to 1 %. PC4_2 Pouring into radiator Covers concentrations up to 7.5 %. PC8 Biocidal products PC24_3 Sprays Covers concentrations up to 5 %. PC9a_1 Water-borne latex wall paint Covers concentrations up to 0.25 %. PC9a_2 Solvent-rich, high-solid, water-borne paint Covers concentrations up to 0.9 %. PC9a_3 Aerosol spray can Covers concentrations up to 4 %. PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) Covers concentrations up to 1.3 %. PC9b_1 Fillers and putty Covers concentrations up to 2 %. PC9b_2 Plasters and floor equalisers Covers concentrations up to 0.05 %. PC9c Finger paints. Covers concentrations up to 30 %. PC24_1 Liquids Covers concentrations up to 35 %. PC24_2 Pastes PC38 Welding and soldering products, flux products Covers concentrations up to 20 %. PC35 Washing and cleaning products PC8_1 Laundry and dish-washing products PC35 Washing and cleaning products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) Covers concentrations up to 5 %. PC35 Washing and cleaning products PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) Covers concentrations up to 10 %.

Amounts used

Use as a Cleaning Agent - Consumer

For each use event, covers use amounts up to 37500 g.
Unless otherwise stated.

PC3_1 Air care, instant action (aerosol sprays)

For each use event, covers use amounts up to 0.1 g.

PC3_2 Air care, continuous action (solid and liquid)

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.

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 13800 g.

PC9b_3 Modelling clay

For each use event, covers use amounts up to 1 g.

PC9c Finger paints

For each use event, covers use amounts up to 1.35 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.

PC35 Washing and cleaning products

PC8_1 Laundry and dish-washing products

For each use event, covers use amounts up to 15 g.

PC35 Washing and cleaning products

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.

PC35 Washing and cleaning products

PC8_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 as a Cleaning Agent - Consumer

Covers use up to 365 day(s)/year.

Unless otherwise stated.

PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Covers use up to 128 day(s)/year.

PC9a_1 Water-borne latex wall paint

PC9a_3 Aerosol spray can.

PC24_1 Liquids

Covers use up to 4 day(s)/year.

PC9a_2 Solvent-rich, high-solid, water-borne paint

PC24_3 Sprays

Covers use up to 6 day(s)/year.

PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover)

Covers use up to 3 days/year.

PC9b_1 Fillers and putty

PC9b_2 Plasters and floor equalisers

Covers use up to 12 day(s)/year.

PC24_2 Pastes

Covers use up to 10 day(s)/year.

PC35 Washing and cleaning products

PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

PC35 Washing and cleaning products

PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Covers use up to 128 day(s)/year.

Covers use up to 1 times/day of use . Unless otherwise stated. PC3_1 Air care, instant action (aerosol sprays) Covers use up to 4 times/day of use . Covers exposure up to 2 hours per event. Unless otherwise stated. PC3_1 Air care, instant action (aerosol sprays) Covers

exposure up to 0.25 hours per event. PC3_2 Air care, continuous action (solid and liquid) Covers exposure up to 8 hours per event. PC4_1 Washing car window Covers exposure up to 0.02 hours per event. PC4_2 Pouring into radiator PC24_1 Liquids PC24_3 Sprays PC35

Washing and cleaning products PC8_3 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) Covers exposure up to 0.17 hours per event. PC4_3 Lock de-icer Covers exposure up to 0.25 hours per event. PC8_1 Laundry and dish-washing

products PC35 Washing and cleaning products PC8_1 Laundry and dish-washing products Covers exposure up to 0.5 hours per event. PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) PC9a_3

Aerosol spray can PC35 Washing and cleaning products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) Covers exposure up to 0.33 hours per event. PC9a_1 Water-borne latex wall paint PC9a_2

Solvent-rich, high-solid, water-borne paint Covers exposure up to 2.2 hours per event. PC9b_1 Fillers and putty Covers exposure up to 4 hours per event. PC38 Welding and soldering products, flux products Covers exposure up to 1 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts

Covers skin contact area up to 430 cm². Unless otherwise stated. PC3_2 Air care, continuous action (solid and liquid) PC9b_1 Fillers and putty Covers skin contact area up to 35.7 cm².

PC4_3 Lock de-icer Covers skin contact area up to 214.4 cm². PC8 Biocidal products PC9a_4 Removers (paint-, glue-, wallpaper-, sealant-remover) PC9b_2 Plasters and floor equalisers

PC35 Washing and cleaning products PC8_1 Laundry and dish-washing products PC35 Washing and cleaning products PC8_2 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) Covers skin contact

area up to 857.5 cm². PC9b_3 Modelling clay PC9c Finger paints Covers skin contact area up to 254.4 cm². PC24_1 Liquids PC24_2 Pastes Covers skin contact area up to 468 cm².

Use as a Cleaning Agent - Consumer

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 m ³ . Unless otherwise stated. PC4 Anti-freeze and de-icing products. PC9a_3 Aerosol spray can PC24_1 Liquids PC24_2 Pastes Covers use in a one car garage (34 m ³) under typical ventilation.
Ventilation rate	Covers use under typical household ventilation.

3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
	The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method	Used ECETOC TRA model.
	The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC2 Formulation into mixture
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Worker

Distribution of substance - Industrial

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

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

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

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Common practices vary across sites, thus conservative process release estimates used.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Drain or remove substance from equipment prior to break-in or maintenance.
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Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method	EUSES v2.1 The use is assessed to be safe.
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4. Guidance to check compliance with the exposure scenario (Environment 1)

Distribution of substance - Industrial

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

 The use is assessed to be safe.

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

Manufacture of substance - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC1 Manufacture of the substance ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC15 Use as laboratory reagent.

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

Product characteristics

Manufacture of substance - Industrial

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Regional use tonnage: 300000 tonnes/year
Annual amount used in the EU: 1000000 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): 0.05
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.000015
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 40 Local marine water dilution factor: 100
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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%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Common practices vary across sites, thus conservative process release estimates used.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Drain or remove substance from equipment prior to break-in or maintenance. Sample via a closed loop or other system to avoid exposure. Avoid dip sampling.
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Risk management measures

Manufacture of substance - Industrial

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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 and (re)packing of substances and mixtures - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Formulation and (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, 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

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Formulation and (re)packing of substances and mixtures - Industrial

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 17142000 tonnes
Annual amount per site: 1714 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): 0.025
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.0002
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
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Formulation and (re)packing of substances and mixtures - Industrial

Waste treatment External treatment and disposal 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 > 10 kPa at STP

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

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

Ventilation rate Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

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

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

Technical protective measures Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Drain or remove substance from equipment prior to break-in or maintenance. Sample via a closed loop or other system to avoid exposure. Avoid dip sampling.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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 - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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

Environment

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

Process category	PROC10 Roller application or brushing PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Frequency and duration of use

Emission days: 100 days/year

Use in laboratories - Industrial

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.025
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.02
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.00001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. Typical onsite wastewater treatment technology provides removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

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

Technical protective measures	Handle in a fume cupboard or under extract ventilation.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure the ventilation system is regularly maintained and tested.
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Risk management measures

Wear suitable gloves tested to EN374.
Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method	EUSES v2.1
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Use in laboratories - Industrial

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
<u>Worker</u>	
Process category	PROC10 Roller application or brushing PROC15 Use as laboratory reagent.

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual site tonnage: 2.85 tonnes

Frequency and duration of use

Use in laboratories - Professional

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
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. Typical onsite wastewater treatment technology provides removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

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

Technical protective measures	Handle in a fume cupboard or under extract ventilation.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure the ventilation system is regularly maintained and tested.
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Risk management measures

Wear suitable gloves tested to EN374.
Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Use in laboratories - Professional

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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 cleaning agent - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

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

Use as a cleaning agent - Industrial

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes

Frequency and duration of use

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

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 1
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	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100

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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils.
	Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
	Common practices vary across sites, thus conservative process release estimates used.

Use as a cleaning agent - Industrial

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

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Use drum pumps or carefully pour from container. Drain or remove substance from equipment prior to break-in or maintenance. PROC7 Industrial spraying Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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 cleaning agent - Professional

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use as a cleaning agent - Professional
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	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels

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

Use as a cleaning agent - Professional

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes

Frequency and duration of use

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): 0.05
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: 40
	Local marine water dilution factor: 100

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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils.
	Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
	Common practices vary across sites, thus conservative process release estimates used.

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

Use as a cleaning agent - Professional

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Use drum pumps or carefully pour from container. Drain or remove substance from equipment prior to break-in or maintenance. Avoid dip sampling.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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

Environment

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

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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) PROC12 Use of blow agents in manufacture of foam.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Use as a blowing agent - Industrial

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 5710 tonnes
Regional use tonnage: 0.19 tonnes/year

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): 1
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.00003
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Water	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

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

Use as a blowing agent - Industrial

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

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Use as a fuel - Industrial

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 0.19 tonnes/year

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): 0.05
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.05
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: 40 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

Use as a fuel - Industrial

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

Technical protective measures Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Avoid dip sampling.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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
<u>Environment</u>	
Environmental release category	ERC9a Widespread use of functional fluid (indoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels

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

Product characteristics

Use as a fuel - Professional

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 0.19 tonnes/year

Frequency and duration of use

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): 0.05
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: 40 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

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

Use as a fuel - Professional

Technical protective measures Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Use drum pumps or carefully pour from container. Avoid dip sampling.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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 an intermediate - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use as an intermediate - Industrial
Process scope	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

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

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

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 0.19 tonnes/year

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): 0.002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.0003
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Common practices vary across sites, thus conservative process release estimates used.
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Use as an intermediate - Industrial

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

Technical protective measures Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Ensure samples are obtained under containment or extract ventilation. Drain or remove substance from equipment prior to break-in or maintenance. Clear transfer lines prior to de-coupling.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Apply vessel entry procedures, including use of forced supplied air. Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use in polymer processing - Industrial
Process scope	Processing of formulated polymers, including material transfers, moulding and forming activities, material reworks and associated maintenance.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Use in polymer processing - Industrial

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC21 Low energy manipulation and handling of substances bound in/on materials or articles
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 28600 tonnes
Regional use tonnage: 0.286 tonnes/year

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.35
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): 0.00025

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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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	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Use in polymer processing - Industrial

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Common practices vary across sites, thus conservative process release estimates used.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure samples are obtained under containment or extract ventilation. Drain or remove substance from equipment prior to break-in or maintenance. Clear transfer lines prior to de-coupling. Carry out in a vented booth or extracted enclosure.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure the ventilation system is regularly maintained and tested.
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Risk management measures

Wear suitable gloves tested to EN374.
Wear suitable coveralls to prevent exposure to the skin.
Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method	EUSES v2.1 The use is assessed to be safe.
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4. Guidance to check compliance with the exposure scenario (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method	Used EUSES model. The use is assessed to be safe.
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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 coatings - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use 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, brush, spreader by hand or similar methods and film formation) and equipment cleaning, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
<u>Worker</u>	

Use in coatings - Industrial

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 0.19 tonnes/year

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.098
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.0007
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: 40 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Prevent discharge of undissolved substance to or recover from onsite waste water.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

Use in coatings - Industrial

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Film formation - force drying (50 - 100°C), stoving (> 100°C), UV/EB radiation curing Assumes activities reflect a hot process.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). PROC7 Industrial spraying Manual spraying Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

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

Technical protective measures	Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Avoid dip sampling. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure the ventilation system is regularly maintained and tested.
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Risk management measures

Wear suitable gloves tested to EN374.
Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method	EUSES v2.1 The use is assessed to be safe.
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4. Guidance to check compliance with the exposure scenario (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method	Used EUSES model. The use is assessed to be safe.
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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 coatings - Professional

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Use 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
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
<u>Worker</u>	

Use in coatings - Professional

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
	PROC4 Chemical production where opportunity for exposure arises
	PROC5 Mixing or blending in batch processes
	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
	PROC10 Roller application or brushing
	PROC11 Non industrial spraying
	PROC13 Treatment of articles by dipping and pouring.
	PROC15 Use as laboratory reagent.
	PROC19 Manual activities involving hand contact

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %.
	Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 1900 tonnes
Regional use tonnage: 0.19 tonnes/year

Frequency and duration of use

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: 40 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
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Use in coatings - Professional

Waste treatment External treatment and disposal 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 > 10 kPa at STP

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Film formation - force drying (50 - 100°C), stoving (> 100°C), UV/EB radiation curing Assumes activities reflect a hot process.

Ventilation rate Provide a good standard of controlled ventilation (10 to 15 air changes per hour). , or: Ensure operation is undertaken outdoors.

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

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

Technical protective measures Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Use drum pumps. Avoid dip sampling. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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

Use in coatings - Professional

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	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

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
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)
<u>Worker</u>	
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 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC21 Low energy manipulation and handling of substances bound in/on materials or articles

Use in polymer processing - Professional

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 28600 tonnes
Regional use tonnage: 0.286 tonnes/year

Frequency and duration of use

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

Water	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
Waste treatment	External treatment and disposal 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 > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Common practices vary across sites, thus conservative process release estimates used.

Use in polymer processing - Professional

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

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Drain or remove substance from equipment prior to break-in or maintenance. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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
Polymer production - Industrial

Identification

Product name	Cyclohexane
REACH registration number	01-2119463273-41-XXXX
CAS number	110-82-7
EC number	203-806-2
EU index number	601-017-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS@UnivarSolutions.com

1. Title of exposure scenario

Main title	Polymer production - Industrial
Process scope	Manufacture of polymers from monomers in continuous and batch processes. Includes production, recycling and recovery, degassing, discharging, reactor maintenance and immediate polymer product formation (i.e. compounding, pelletisation, product off-gassing).
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC6a Use of intermediate ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Polymer production - Industrial

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
	PROC4 Chemical production where opportunity for exposure arises
	PROC5 Mixing or blending in batch processes
	PROC6 Calendering operations.
	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)
	PROC14 Tabletting, compression, extrusion, pelletisation, granulation
	PROC21 Low energy manipulation and handling of substances bound in/on materials or articles

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

Product characteristics

Physical state	Liquid, vapour pressure > 10 kPa at STP
Concentration details	Covers concentrations up to 100 %. Readily biodegradable. Predominantly hydrophobic.

Amounts used

Annual amount used in the EU: 5710 tonnes
Regional use tonnage: 0.571 tonnes/year

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): 0.002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.0003
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 96.6%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Do not apply industrial sludge to natural soils. Common practices vary across sites, thus conservative process release estimates used.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge should be incinerated, contained or reclaimed.
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Polymer production - Industrial

Waste treatment External treatment and disposal 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 > 10 kPa at STP

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

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

Ventilation rate Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

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

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

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Drain or remove substance from equipment prior to break-in or maintenance. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. PROC5 Mixing or blending in batch processes PROC14 Tableting, compression, extrusion, pelletisation, granulation Limit the substance content in the product to 5%.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure the ventilation system is regularly maintained and tested.

Risk management measures

Wear suitable gloves tested to EN374.

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Assessment method EUSES v2.1

The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given 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.

3. Exposure estimation (Health 1)

Assessment method Used EUSES model.

The use is assessed to be safe.

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

Polymer production - 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.