

SAFETY DATA SHEET



n-Octylamine

10550

Version / Revision

5

Revision Date

25-Jun-2021

Supersedes Version

4.01***

Issuing date

25-Jun-2021

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

1.1. Product identifier

Identification of the substance/preparation

n-Octylamine

Chemical Name

Octylamine

CAS-No

111-86-4

EC No.

203-916-0

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

Identified uses

Intermediate
Formulation
Sealant
Functional Fluids
laboratory chemicals

Uses advised against

None

1.3. Details of the supplier of the safety data sheet

Company/Undertaking Identification

OQ Chemicals GmbH
Rheinpromenade 4A
D-40789 Monheim
Germany

Product Information

Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oq.com

1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK)
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Flammable liquid Category 3, H226
Acute oral toxicity Category 3, H301
Acute dermal toxicity Category 3, H311
Acute inhalation toxicity Category 4, H332
Skin corrosion/irritation Category 1A, H314
Serious eye damage/eye irritation Category 1, H318
Target Organ Systemic Toxicant - Single exposure Category 3, H335

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Environmental hazard Aquatic Acute 1; H400
Aquatic Chronic 2; H411
M-Factor: 1 (self-classification)

Additional information

For full text of Hazard- and EU Hazard-statements see SECTION 16.

2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

Hazard pictograms



Signal word

Danger

Hazard statements

H226: Flammable liquid and vapour.
H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H332: Harmful if inhaled.
H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H400: Very toxic to aquatic life.
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.
P233: Keep container tightly closed.
P260: Do not breathe gas/mist/vapours.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P321: Specific treatment: IF ON SKIN: Wash off with 3% acetic acid followed by large amounts of plain water for at least 5 min as a final step.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P391: Collect spillage.
P403 + P235: Store in a well ventilated place. Keep cool.
P501: Dispose of contents/container in accordance with local regulation.

2.3. Other hazards

None known

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PBT and vPvB assessment This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	1272/2008/EC	Concentration (%)
Octylamine	111-86-4	Flam. Liq. 3; H226 Acute Tox. 3; H301 Acute Tox. 3; H311 Acute Tox. 4; H332 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 M-Factor: 1 (self-classification)	> 99,0

For full text of Hazard- and EU Hazard-statements see SECTION 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Keep at rest. Aerate with fresh air. Call a physician immediately. Symptoms of poisoning may develop many hours after exposure.

Skin

Wash off with 3% acetic acid followed by large amounts of plain water for at least 5 min as a final step. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

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

Main symptoms

shortness of breath, convulsions, cough, hypertensive effect.

Special hazard

Stomach perforation, Lung oedema.

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

General advice

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat as an alkaline substance (similar to ammonia). If ingested, irrigate the stomach. Treat skin and mucous membranes with antihistamine and corticoids. In case of lung irritation, first treatment with cortisone spray.

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Symptoms may be delayed. Later control for pneumonia and lung oedema.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

alcohol-resistant foam, dry chemical, carbon dioxide (CO₂), water spray

Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:

carbon monoxide (CO)

carbon dioxide (CO₂)

nitrogen oxides (NO_x)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Vapours are heavier than air and may spread along floors

5.3. Advice for firefighters

Special protective equipment for firefighters

Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting

Cool containers / tanks with water spray. Water run-off and vapor cloud may be corrosive. Water run-off can cause environmental damage. Do not allow run-off from fire fighting to enter drains or water courses. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.

For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant). Water runoff can cause environmental damage.

6.3. Methods and material for containment and cleaning up

Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up

Soak up with inert absorbent material. DO NOT use combustible materials such as sawdust. Keep in suitable, closed containers for disposal. If liquid has been spilled in large quantities clean up promptly by scoop or vacuum.

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Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Further info may be available in the appropriate Exposure scenarios in the annex to this SDS.

Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms. Refill and handle product only in closed system.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment

See Section 8: Environmental exposure controls.

Incompatible products

strong acids
oxidizing agents

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Handle under nitrogen, protect from moisture. Keep at temperatures between -1 and 38 °C (30 and 100 °F).

Temperature class

T3

7.3. Specific end use(s)

Intermediate
Formulation
Sealant

Functional Fluids
laboratory chemicals

For specific end use information see the annex of this safety data sheet

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

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Exposure limits European Union

No exposure limits established

Exposure limits UK

No exposure limits established.

DNEL & PNEC

Octylamine, CAS: 111-86-4 Workers

DN(M)EL - long-term exposure - systemic effects - Inhalation	4,6 mg/m ³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - local effects - Inhalation	26,85 mg/m ³
DN(M)EL - acute / short-term exposure - local effects - Inhalation	53,7 mg/m ³
DN(M)EL - long-term exposure - systemic effects - Dermal	0,65 mg/kg bw/day
DN(M)EL - acute / short-term exposure - systemic effects - Dermal	Medium hazard (no threshold derived)
DN(M)EL - long-term exposure - local effects - Dermal	High hazard (no threshold derived)
DN(M)EL - acute / short-term exposure - local effects - Dermal	High hazard (no threshold derived)
DN(M)EL - local effects - eyes	High hazard (no threshold derived)

General population

DN(M)EL - long-term exposure - systemic effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - local effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - local effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - systemic effects - Dermal	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - systemic effects - Dermal	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - local effects - Dermal	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - local effects - Dermal	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - systemic effects - Oral	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - systemic effects - Oral	Hazard unknown (no further information necessary)

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DN(M)EL - local effects - eyes

Hazard unknown (no further information necessary)

Environment

PNEC aqua - freshwater	0,0002 mg/l
PNEC aqua - marine water	0,00002 mg/l
PNEC aqua - intermittent releases	0,002 mg/l
PNEC STP	3,2 mg/l
PNEC sediment - freshwater	0,353 mg/kg dw
PNEC sediment - marine water	0,0353 mg/kg dw
PNEC Air	No hazard identified
PNEC soil	0,0702 mg/kg dw
Secondary poisoning	No potential for bioaccumulation

8.2. Exposure controls

Special adaptations (REACH)

Not applicable.

Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Equipment should conform to EN 166

Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material	nitrile rubber
Evaluation	according to EN 374: level 3
Glove thickness	approx 0,55 mm
Break through time	approx 60 min
Suitable material	polyvinylchloride
Evaluation	Information derived from practical experience
Glove thickness	approx 0,8 mm

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Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection

Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.

Environmental exposure controls

Use product only in closed system. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

Additional advice

Further details on substance data can be found in the registration dossier under the following link:
<http://echa.europa.eu/information-on-chemicals/registered-substances>. For specific exposure controls see the annex to this safety data sheet.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	colourless
Odour	ammonia-like
Odour threshold	No data available
pH	11,8 (100 g/l in water @ 25 °C (77 °F)) DIN 19268
Melting point/range	2 °C (Pour point)
Method	DIN ISO 3016
Boiling point/range	178 °C @ 1013 hPa
Method	OECD 103
Flash point	58 °C @ 1013 hPa
Method	ISO 2719
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	0,7 Vol %
Upper explosion limit	9,6 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
0,81	0,081	0,00081	20	68	
~ 7	~ 0,7	~ 0,007	50	122	

Vapour density 4,46 (Air = 1) @ 20 °C (68 °F)

Relative density

Values	@ °C	@ °F	Method
0,7808	20	68	DIN 51757

Solubility 0,32 g/l @ 20 °C, in water, ISO 4311

log Pow 3,7 @ 25 °C (77 °F), OECD 117

Autoignition temperature 275 °C @ 1019 hPa

Method DIN 51794

Decomposition temperature No data available

Viscosity 1,371 mPa*s @ 20 °C

Method DIN 51562, dynamic

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Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties
Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

9.2. Other information

Molecular weight 129,25
Molecular formula C8 H19 N
log Koc 4,25 @ pH 5 - 7 calculated
Dissociation constant pKa 10,6 @ 23,5 °C (74,3 °F) OECD 112
Refractive index 1,429 @ 20 °C
Surface tension 44,2 mN/m (0,28 g/l @ 20°C (68°F)), OECD 115

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

strong acids, oxidizing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed. If heated to thermal decomposition the following decomposition products may occur depending on the conditions. carbon monoxide (CO). nitrogen oxides (NOx). cyanides. nitric acid. nitriles.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure Inhalation, Eye contact, Skin contact, Ingestion

Acute toxicity				
Octylamine (111-86-4)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	< 200 mg/kg	rat, male/female	OECD 401

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Inhalative	LC50	1,6 mg/l (4 h)	rat, male/female	OECD 403
Dermal	LD50	200 - 2000 mg/kg	rabbit	

Octylamine, CAS: 111-86-4

Assessment

The available data lead to the classification given in section 2

Irritation and corrosion

Octylamine (111-86-4)

Target Organ Effects	Species	Result	Method	
Skin	rabbit	highly corrosive	OECD 404	3 min
Eyes	rabbit	highly corrosive	OECD 405	
Respiratory tract	mouse male	RD50: 17 ppm		15 min

Octylamine, CAS: 111-86-4

Assessment

The available data lead to the classification given in section 2

Sensitization

Octylamine (111-86-4)

Target Organ Effects	Species	Evaluation	Method	
Skin	mouse female	negative	MEST	10 %, in Ethanol

Octylamine, CAS: 111-86-4

Assessment

Based on available data, the classification criteria are not met for:

Skin sensitization

For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity

Octylamine (111-86-4)

Type	Dose	Species	Method	
Subchronic toxicity	NOAEL: ~ 100 mg/kg/d	rat, male/female	OECD 422	Oral read across

Octylamine, CAS: 111-86-4

Assessment

Based on available data, the classification criteria are not met for:

STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity

Octylamine (111-86-4)

Type	Dose	Species	Evaluation	Method	
Mutagenicity		mouse lymphoma cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study read across
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		mouse male	negative	OECD 474	in vivo read across
Reproductive toxicity	NOAEL 100 mg/kg/d	rat, parental		OECD 422, Oral	read across
Reproductive toxicity	NOAEL 100	rat, 1.		OECD 422, Oral	read across

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	mg/kg/d	Generation, male/female			
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Octylamine, CAS: 111-86-4

CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

Evaluation

In vitro tests did not show mutagenic effects

Did not show reprotoxic or mutagenic effects in animal experiments

For carcinogenicity, no data are available

Octylamine, CAS: 111-86-4

Main symptoms

shortness of breath, convulsions, cough, hypertensive effect.

Target Organ Systemic Toxicant - Single exposure

The available data lead to the classification given in section 2

Target Organ Systemic Toxicant - Repeated exposure

Based on available data, the classification criteria are not met for:

STOT RE

Aspiration toxicity

Due to the viscosity, this product does not present an aspiration hazard

Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:

<http://echa.europa.eu/information-on-chemicals/registered-substances>.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Octylamine (111-86-4)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 1,9 mg/l	OECD 202
Pimephales promelas (fathead minnow)	96h	LC50: 5,19 mg/l	OECD 203
Desmodesmus subspicatus	72h	EC50: 0,23 mg/l (Growth rate)	92/69/EEC C.3
Activated sludge (bacteriae)	11 d	NOEC: >= 32 mg/l	OECD 301A

Long term toxicity				
Octylamine (111-86-4)				
Type	Species	Dose	Method	
Aquatic toxicity	Desmodesmus subspicatus	NOEC: 0,01 mg/l (3d)	Growth rate 92/69/EEC C.3	
Aquatic toxicity	Desmodesmus subspicatus	EC10: 0,07 mg/l (72 h)	Growth rate 92/69/EEC C.3	

12.2. Persistence and degradability

Octylamine, CAS: 111-86-4

Biodegradation

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> 70 % (12 d), activated sludge, domestic, non-adapted, OECD 301 C.

Abiotic Degradation		
Octylamine (111-86-4)		
Type	Result	Method
Hydrolysis	not expected	
Photolysis	Half-life (DT50): 10 h	calculated

12.3. Bioaccumulative potential

Octylamine (111-86-4)		
Type	Result	Method
log Pow	3,7 @ 25 °C (77 °F)	measured, OECD 117
BCF	89-120	calculated

12.4. Mobility in soil

Octylamine (111-86-4)		
Type	Result	Method
Surface tension	44,2 mN/m (0,28 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	log Koc: 4,25 @ pH 5 - 7	calculated
Distribution to environmental compartments	Air: 2,44% Soil: 76,8% Water: 20,4% Sediment: 0,39%	Calculation according Mackay, Level I

12.5. Results of PBT and vPvB assessment

Octylamine, CAS: 111-86-4

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

Octylamine, CAS: 111-86-4

No data available

Note

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Hazardous waste according to European Waste Catalogue (EWC)

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Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

ADR/RID

14.1. UN number	UN 2734
14.2. UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. (n-Octylamine)
14.3. Transport hazard class(es)	8
Subsidiary Risk	3
14.4. Packing group	1
14.5. Environmental hazards	Fish and tree
14.6. Special precautions for user	
ADR Tunnel restriction code	(D/E)
Classification Code	CF1
Hazard Number	883

ADN

ADN Container

14.1. UN number	UN 2734
14.2. UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. (n-Octylamine)
14.3. Transport hazard class(es)	8
Subsidiary Risk	3
14.4. Packing group	1
14.5. Environmental hazards	Fish and tree
14.6. Special precautions for user	
Classification Code	CF1
Hazard Number	883

ADN

ADN Tanker
forbidden

ICAO-TI / IATA-DGR

14.1. UN number	UN 2734
14.2. UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. (n-Octylamine)
14.3. Transport hazard class(es)	8
Subsidiary Risk	3
14.4. Packing group	1
14.5. Environmental hazards	Fish and tree
14.6. Special precautions for user	no data available

IMDG

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14.1. UN number	UN 2734
14.2. UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. (n-Octylamine)
14.3. Transport hazard class(es)	8
Subsidiary Risk	3
14.4. Packing group	I
14.5. Environmental hazards	
Marking	Fish and tree
Marine pollutant	yes
14.6. Special precautions for user	
EmS	F-E, S-C
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation 1272/2008, Annex VI

not listed

DI 2012/18/EU (Seveso III)

Category

Annex I, part 1:
P5a - c; depending on conditions
E1

DI 1999/13/EC (VOC Guideline)

Component	Status
Octylamine CAS: 111-86-4	regulated

International Inventories

Octylamine, CAS: 111-86-4

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2039160 (EU)
ENCS (2)-133 (JP)
ISHL (2)-133 (JP)
KECI KE-26611 (KR)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

National regulatory information Great Britain

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Releases to air (Pollution Inventory Substances)

not subject

Releases to water (Pollution Inventory Substances)

not subject

Releases to sewer (Pollution Inventory Substances)

not subject

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758 ***

Component	Status
Octylamine CAS: 111-86-4	The substance will not be pre-registered.***

For details and further information please refer to the original regulation

15.2. Chemical safety assessment

The Chemical Safety Report (CSR) has been generated. For Exposure Scenarios see the annex.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H226: Flammable liquid and vapour.
H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H332: Harmful if inhaled.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.
H400: Very toxic to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

Abbreviations

A table of terms and abbreviations can be found under the following link:
http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf

Training advice

For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet

Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OQ homepage (www.chemicals.oq.com).

Disclaimer

For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OQ makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other



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substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet

Annex to the extended Safety Data Sheet (eSDS)

General information

A quantitative approach used to conclude safe use for:

Environmental compartment

Long-term Systemic effects via inhalation

Long term local hazards via inhalation

Acute local hazards via inhalation

Long-term Systemic effects via skin

A qualitative approach used to conclude safe use for:

Acute systemic hazards via inhalation

Acute systemic hazards via skin

Long-term local effects via skin

Acute local hazards via skin

Local hazards via eyes

Operational conditions and risk management measures

Wear protective gloves and eye/face protection

Skin coverage with appropriate barrier material based on potential for contact with the chemicals

Any measure to eliminate exposure should be considered

Containment of source except for short term exposure (e.g. taking sample)

Design closed system to allow for easy maintenance

If possible keep equipment under negative pressure

Control staff entry to work area

Regular cleaning of equipment and work area

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

Training for staff on good practice

Procedures and training for emergency decontamination and disposal

Exposure scenario identification

- 1 **Industrial use resulting in manufacture of another substance (use of intermediates)**
- 2 **Formulation & (re)packing of substances and mixtures**
- 3 **Sealant use**
- 4 **Functional Fluids**
- 5 **Functional Fluids**
- 6 **Use in laboratories**

Number of the ES 1

Short title of the exposure scenario

Industrial use resulting in manufacture of another substance (use of intermediates)

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List of use descriptors

Process categories [PROC]

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

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

Further explanations

Industrial use

Assessment tool used:

Chesar 3.1

Product (article) characteristics

liquid

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

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

Assumes an advanced standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling environmental exposure for ERC 6a

Further specification

release factors for (Sp)ERC were modified

Amounts used

Daily amount per site: 0.17 to

Annual amount per site: 50 to

Fraction of Regional tonnage used locally: 0.1

Environment factors not influenced by risk management

River flow rate: 18000 m³/d

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

Release fraction to air from process: 0.02 %

Release fraction to wastewater from process: 0.015 %

Release fraction to soil from process: 0.1%

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/ treatment plant (m³/d): 2000

The minimum grade of elimination in the sewage plant is (%): 91,09

Water flow in sewage/river (m³/day): 18000

Number of the contributing scenario

2

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Contributing exposure scenario controlling worker exposure for PROC 1

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Without local exhaust ventilation. provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Wear respiratory protection (Efficiency: 95 %).

Number of the contributing scenario 3

Contributing exposure scenario controlling worker exposure for PROC 2

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Wear respiratory protection (Efficiency: 95 %).

Number of the contributing scenario 4

Contributing exposure scenario controlling worker exposure for PROC 3

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Wear respiratory protection (Efficiency: 95 %).

Number of the contributing scenario 5

Contributing exposure scenario controlling worker exposure for PROC 4

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Wear respiratory protection (Efficiency: 95 %).

Number of the contributing scenario 6

Contributing exposure scenario controlling worker exposure for PROC 5

Frequency and duration of use

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8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario

7

Contributing exposure scenario controlling worker exposure for PROC 8a

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario

8

Contributing exposure scenario controlling worker exposure for PROC 8b

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 95 % (inhalative); 95 % (dermal).

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario

9

Contributing exposure scenario controlling worker exposure for PROC 15

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

Exposure estimation and reference to its source

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)

PEC: 1.13E-4 mg/l; RCR: 0.563

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Fresh Water (Sediment)	PEC: 0.08 mg/kg dw; RCR: 0.227
Marine Water (Pelagic)	PEC: 1.12E-5 mg/l; RCR: 0.561
Marine Water (Sediment)	PEC: 7.97E-3 mg/kg dw; RCR: 0.226
Agricultural Soil	PEC: 0.031 mg/kg dw; RCR: 0.441
Sewage Treatment Plant (Effluent)	PEC: 1.12E-3 mg/l; RCR: < 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 8.08E-4; EE(derm): 6.8E-3
Proc 2	EE(inhal): 0.081; EE(derm): 0.274
Proc 3	EE(inhal): 0.024; EE(derm): 0.014
Proc 4	EE(inhal): 0.04; EE(derm): 0.137
Proc 5	EE(inhal): 0.04; EE(derm): 0.274
Proc 8a	EE(inhal): 0.081; EE(derm): 0.274
Proc 8b	EE(inhal): 0.02; EE(derm): 0.137
Proc 15	EE(inhal): 0.04; EE(derm): 0.0068

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): < 0.01 ; RCR(derm): 0.01
Proc 2	RCR(inhal): 0.018; RCR(derm): < 0.01
Proc 3	RCR(inhal): <0.01; RCR(derm): 0.021
Proc 4	RCR(inhal): <0.01; RCR(derm): 0.211
Proc 5	RCR(inhal): < 0.01; RCR(derm): 0.422
Proc 8a	RCR(inhal): 0.018; RCR(derm): 0.422
Proc 8b	RCR(inhal): < 0.01; RCR(derm): 0.211
Proc 15	RCR(inhal): < 0.01; RCR(derm): 0.01

Number of the ES 2

Short title of the exposure scenario

Formulation & (re)packing of substances and mixtures

Process categories [PROC]

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC15: Use as laboratory reagent

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Environmental release categories [ERC]

ERC2: Formulation of preparations (mixtures)

Processes and activities covered by the exposure scenario

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.

Further explanations

Industrial use

Chesar 3.1

Product (article) characteristics

liquid

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

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

Assumes an advanced standard of occupational Health and Safety Management System

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 2

Further specification

release factors for (Sp)ERC were modified.

Amounts used

Daily amount per site: 0.17 to

Annual amount per site: 50 to

Fraction of Regional tonnage used locally: 0.1

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

Release fraction to air from process: 0.5 %

Release fraction to wastewater from process: 0.015 %

Release fraction to soil from process: 0.01%

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/ treatment plant (m³/d): 2000

Water flow in sewage/river (m³/day): 180020

The minimum grade of elimination in the sewage plant is (%): 91.09

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 1

Product characteristics

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

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor and outdoor use

Technical conditions and measures to control dispersion from source towards the worker

Without local exhaust ventilation, provide a basic standard of general ventilation (1 to 3 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 2

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

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Technical conditions and measures to control dispersion from source towards the worker

Without local exhaust ventilation, provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 3

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 4

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 5

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 8a

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 8
Contributing exposure scenario controlling worker exposure for PROC 8b

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 95 % (inhalative); 95 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 9
Contributing exposure scenario controlling worker exposure for PROC 9

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 10
Contributing exposure scenario controlling worker exposure for PROC 15

Frequency and duration of use

8 h (full shift)

Other given operational conditions affecting workers exposure

Indoor use

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 90 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 1.13E-4 mg/l; RCR: 0.563
Fresh Water (Sediment)	PEC: 0.08 mg/kg dw; RCR: 0.227
Marine Water (Pelagic)	PEC: 1.12E-5 mg/l; RCR: 0.561
Marine Water (Sediment)	PEC: 7.97E-3 mg/kg dw; RCR: 0.226
Agricultural Soil	PEC: 0.031 mg/kg dw; RCR: 0.446
Sewage Treatment Plant (Effluent)	PEC: 1.12E-3 mg/l; RCR: < 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs

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described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 2.69E-3; EE(derm): 6.8E-3
Proc 2	EE(inhal): 0.081; EE(derm): 0.274
Proc 3	EE(inhal): 0.024; EE(derm): 0.014
Proc 4	EE(inhal): 0.04; EE(derm): 0.137
Proc 5	EE(inhal): 0.04; EE(derm): 0.274
Proc 8a	EE(inhal): 0.081; EE(derm): 0.274
Proc 8b	EE(inhal): 0.02; EE(derm): 0.137
Proc 9	EE(inhal): 0.04; EE(derm): 0.137
Proc 15	EE(inhal): 0.04; EE(derm): 6.8E-3

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): < 0.01; RCR(derm): 0.01
Proc 2	RCR(inhal): 0.018; RCR(derm): 0.422
Proc 3	RCR(inhal): < 0.01; RCR(derm): 0.021
Proc 4	RCR(inhal): < 0.01; RCR(derm): 0.211
Proc 5	RCR(inhal): < 0.01; RCR(derm): 0.422
Proc 8a	RCR(inhal): 0.018; RCR(derm): 0.422
Proc 8b	RCR(inhal): < 0.01; RCR(derm): 0.211
Proc 9	RCR(inhal): < 0.01; RCR(derm): 0.211
Proc 15	RCR(inhal): < 0.01; RCR(derm): 0.01

Number of the ES 3

Short title of the exposure scenario

Sealant use

List of use descriptors

Process categories [PROC]

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC14: production of preparations or articles by tableting, compression, extrusion, pelettisation

Environmental release categories [ERC]

ERC5: Industrial use resulting in inclusion into or onto a matrix

Product characteristics

Refer to attached safety data sheets

Further explanations

Industrial use

Assessment tool used:

Chesar 3.1

liquid

Product (article) characteristics

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

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Assumes an advanced standard of occupational Health and Safety Management System
Indoor use

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 5

Further specification

release factors for (Sp)ERC were modified.

Amounts used

Daily amount per site: 0.05 to

Annual amount per site: 1 to

Fraction of Regional tonnage used locally: 0.5

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

Release fraction to air from process: 50 %

Release fraction to wastewater from process: 0.05 %

Release fraction to soil from process: 1%

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/ treatment plant (m³/d): 2000

Water flow in sewage/river (m³/day): 18000

The minimum grade of elimination in the sewage plant is (%): 91,09

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 8b

Frequency and duration of use

8 h (full shift)

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 95 % (inhalative); 95 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 10

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

8 h (full shift)

Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Respiratory protection: 95 %.

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 13

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

8 h (full shift)

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Technical conditions and measures to control dispersion from source towards the worker

Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal). provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Respiratory protection: 95 %.

Number of the contributing scenario

5

Contributing exposure scenario controlling worker exposure for PROC 14

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

8 h (full shift)

Technical conditions and measures to control dispersion from source towards the worker

provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio PEC = predicted environmental concentration (local+regional); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 1.12E-4 mg/l; RCR: 0.562
Fresh Water (Sediment)	PEC: 0.08 mg/kg dw; RCR: 0.226
Marine Water (Pelagic)	PEC: 1.12E-5 mg/l; RCR: 0.56
Marine Water (Sediment)	PEC: 7.96E-3 mg/kg dw; RCR: 0.225
Agricultural Soil	PEC: 0.032 mg/kg dw; RCR: 0.451
Sewage Treatment Plant (Effluent)	PEC: 1.11E-3 mg/l; RCR: < 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 8b	EE(inhal): 0.02; EE(derm): 0.137
Proc 10	EE(inhal): 0.016; EE(derm): 0.549
Proc 13	EE(inhal): 0.065; EE(derm): 0.274
Proc 14	EE(inhal): 0.081; EE(derm): 0.137

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 8b	RCR(inhal): < 0.01; RCR(derm): 0.211
Proc 10	RCR(inhal): < 0.01; RCR(derm): 0.844
Proc 13	RCR(inhal): < 0.01; RCR(derm): 0.422
Proc 14	RCR(inhal): 0.018; RCR(derm): 0.211

Number of the ES 4

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Short title of the exposure scenario

Functional Fluids

List of use descriptors

Process categories [PROC]

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC17: Lubrication at high energy conditions and in partly open process

PROC18: Greasing at high energy conditions

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Environmental release categories [ERC]

ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers

Further explanations

Professional use

Assessment tool used:

Chesar 3.1

Product (article) characteristics

liquid

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

Assumes a basic standard of occupational Health and Safety Management System

Indoor use

Contributing Scenarios

Number of the contributing scenario

1

Contributing exposure scenario controlling environmental exposure for ERC 8a

Amounts used

daily wide dispersive use: $\leq 5.5E-6$ to/d

Fraction of EU tonnage used in region: 0.1

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

Release fraction to air from process: 100 %

Release fraction to wastewater from process: 100 %

Release fraction to soil from process: 0%

Conditions and measures related to municipal sewage treatment plant

The minimum grade of elimination in the sewage plant is (%): 91.09

Number of the contributing scenario

2

Contributing exposure scenario controlling worker exposure for PROC 8a

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

4 h (half shift)

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Technical conditions and measures to control dispersion from source towards the worker

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

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 8b

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

4 h (half shift)

Technical conditions and measures to control dispersion from source towards the worker

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

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario 4
Contributing exposure scenario controlling worker exposure for PROC 9

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

4 h (half shift)

Technical conditions and measures to control dispersion from source towards the worker

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

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 90 %.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 17

Product characteristics

Covers percentage substance in the product up to 1 %

Frequency and duration of use

4 h (half shift)

Technical conditions and measures to control dispersion from source towards the worker

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

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 18

Product characteristics

Covers percentage substance in the product up to 5 %

Frequency and duration of use

4 h (half shift)

Technical conditions and measures to control dispersion from source towards the worker

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

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Respiratory protection: 90 %.

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Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 20

Frequency and duration of use

4 h (half shift)

Technical conditions and measures to control dispersion from source towards the worker

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

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 90 %.

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio PEC = predicted environmental concentration (local+regional); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 2.64E-5 mg/l; RCR: 0.132
Fresh Water (Sediment)	PEC: 0.019 mg/kg dw; RCR: 0.053
Marine Water (Pelagic)	PEC: 2.6E-6 mg/l; RCR: 0.13
Marine Water (Sediment)	PEC: 1.85E-3 mg/kg dw; RCR: 0.052
Agricultural Soil	PEC: 6.79E-3 mg/kg dw; RCR: 0.097
Sewage Treatment Plant (Effluent)	PEC: 2.45E-4 mg/l; RCR: < 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 8a	EE(inhal): 1.131; EE(derm): 0.274
Proc 8b	EE(inhal): 0.452 ; EE(derm): 0.274
Proc 9	EE(inhal): 0.452 ; EE(derm): 0.274
Proc 17	EE(inhal): 1.131 ; EE(derm): 0.246
Proc 18	EE(inhal): 2.262 ; EE(derm): 0.274
Proc 20	EE(inhal): 1.131 ; EE(derm): 0.342

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 8a	RCR(inhal): 0.246 ; RCR(derm): 0.422
Proc 8b	RCR(inhal): 0.098 ; RCR(derm): 0.422
Proc 9	RCR(inhal): 0.098 ; RCR(derm): 0.422
Proc 17	RCR(inhal): 0.246 ; RCR(derm): 0.422
Proc 18	RCR(inhal): 0.492 ; RCR(derm): 0.422
Proc 20	RCR(inhal): 0.246 ; RCR(derm): 0.526

Number of the ES 5

Short title of the exposure scenario

Functional Fluids

Environmental release categories [ERC]

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

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Use as functional fluids e.g. cable oils, transfer oils, insulators, refrigerants, hydraulic fluids in closed professional equipment including incidental exposures during maintenance and related material transfers

Further explanations

Professional use

Assessment tool used:

Chesar 3.1

Product (article) characteristics

liquid

Indoor use

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

Assumes a good basic standard of occupational hygiene is implemented

Number of the contributing scenario

1

Contributing exposure scenario controlling environmental exposure for ERC 8d

Amounts used

daily wide dispersive use: 0.0000055 to/d

Fraction of EU tonnage used in region: 0.1

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

Release fraction to air from process: 100%

Release fraction to wastewater from wide dispersive use: 100%

Release fraction to soil from wide dispersive use (regional only): 20%

Conditions and measures related to municipal sewage treatment plant

The minimum grade of elimination in the sewage plant is (%): 91.09

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 2.64E-5 mg/l; RCR: 0.132
Fresh Water (Sediment)	PEC: 0.019 mg/kg dw; RCR: 0.053
Marine Water (Pelagic)	PEC: 2.6E-6 mg/l; RCR: 0.13
Marine Water (Sediment)	PEC: 1.85E-3 mg/kg dw; RCR: 0.052
Air	PEC: 6.79E-3 mg/m ³ ; RCR: 0.097
Agricultural Soil	PEC: 6.79E-3 mg/kg dw; RCR: 0.097
Sewage Treatment Plant (Effluent)	PEC: 2.45E-4 mg/l; RCR: < 0.01

Number of the ES 6

Short title of the exposure scenario

Use in laboratories

Process categories [PROC]

PROC15: Use as laboratory reagent

Environmental release categories [ERC]

ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics

Refer to attached safety data sheets

Processes and activities covered by the exposure scenario

Use of the substance within laboratory settings, including material transfers and equipment cleaning

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Further explanations

Professional use

Assessment tool used:

Chesar 3.1

Product (article) characteristics

liquid

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

Assumes a basic standard of occupational Health and Safety Management System

Indoor use

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 8a

Amounts used

daily wide dispersive use: 0.00000055 to/d

Fraction of EU tonnage used in region: 0.1

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

Release fraction to air from wide dispersive use (regional only): 100%

Release fraction to wastewater from wide dispersive use: 100%

Release fraction to soil from wide dispersive use (regional only): 0%

Conditions and measures related to municipal sewage treatment plant

The minimum grade of elimination in the sewage plant is (%): 91.09

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 15

Frequency and duration of use

8 h (full shift)

Technical conditions and measures to control dispersion from source towards the worker

provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative); 0 % (dermal).

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374. Respiratory protection: 95 %.

Environment

PEC = predicted environmental concentration (local+regional); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 4.55E-6 mg/l; RCR: 0.023
Fresh Water (Sediment)	PEC: 3.23E-3 mg/kg dw; RCR: < 0.01
Marine Water (Pelagic)	PEC: 4.19E-7 mg/l; RCR: 0.021
Marine Water (Sediment)	PEC: 2.97E-4 mg/kg dw; RCR: < 0.01
Agricultural Soil	PEC: 6.79E-4 mg/kg dw; RCR: < 0.01
Sewage Treatment Plant (Effluent)	PEC: 2.45E-5 mg/l; RCR: < 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm):

Estimated dermal long-term exposure [mg/kg b.w./d]. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 15 EE(inhal): 0.189; EE(derm): 0.068

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 15 RCR(inhal): 0.041; RCR(derm): 0.105

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Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Usage of release factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as $M(\text{site})$ [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:

Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe