

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1
Supersedes Version -

Revision Date 01-Sep-2022
Issuing date 01-Sep-2022

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

1.1. Product identifier

Identification of the substance/preparation

Propionaldehyde

CAS-No 123-38-6
EC No. 204-623-0
Registration number (REACH) 01-2119456625-33

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

Identified uses Transported isolated intermediate (1907/2006)
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
National emergency telephone number National Poisons Information Centre
+353 (0)1 809 2166
available to the public 8 am - 10 pm
+353 (0)1 809 2566
available 24/7 for medical professionals

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 2, H225
Acute oral toxicity Category 4, H302
Acute inhalation toxicity Category 4, H332
Skin corrosion/irritation Category 2, H315
Serious eye damage/eye irritation Category 2, H319
Target Organ Systemic Toxicant - Single exposure Category 3, H335

In addition to the CLP classification based on OQ data this product should also be regarded as:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

Serious eye damage/eye irritation: category 1

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

H225: Highly flammable liquid and vapour.
H302: Harmful if swallowed.
H332: Harmful if inhaled.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

Precautionary statements

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing gas/mist/vapours.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330: IF SWALLOWED: Rinse mouth
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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.
P312: Call a POISON CENTRE/doctor if you feel unwell.
P403 + P235: Store in a well ventilated place. Keep cool.

2.3. Other hazards

Vapours may form explosive mixture with air

Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback

Components of the product may be absorbed into the body by inhalation and ingestion

PBT and vPvB assessment Not required

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	REACH-No	1272/2008/EC	Concentration (%)
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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

Propionaldehyde	123-38-6	01-2119456625-33	Flam. Liq. 2; H225 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	> 98,5
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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. When symptoms persist or in all cases of doubt seek medical advice.

Skin

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes

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

Ingestion

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

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

Main symptoms

shortness of breath, cough, central nervous system depression, hypertensive effect, narcosis, headache, nausea, vomiting, unconsciousness.

Special hazard

Lung oedema, Lung irritation, Kidney disorders, Liver disorders.

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 symptomatically. In case of lung irritation, first treatment with cortisone spray.

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:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

carbon monoxide (CO)
carbon dioxide (CO₂)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback
Vapours may form explosive mixture with air

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. 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).

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 spilt in large quantities clean up promptly by scoop or vacuum. 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

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. Do not use compressed air for filling, discharging or handling.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

breaks and immediately after handling the product.

Advice on the protection of the environment

See Section 8: Environmental exposure controls.

Incompatible products

acids and bases

amines

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. Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback. Vapours may form explosive mixture with air. The pressure in sealed containers can increase under the influence of heat.

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 9 and 38 °C (48 and 100 °F).

Temperature class

T4

7.3. Specific end use(s)

Transported isolated intermediate (1907/2006)

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits European Union

No exposure limits established

Exposure limits Ireland

Ireland OELs

Component	TWA (mg/m ³)	TWA (ppm)	STEL (mg/m ³)	STEL (ppm)	Skin Absorption	Sensitizer
Propionaldehyde CAS: 123-38-6		20				

DNEL & PNEC

Propionaldehyde, CAS: 123-38-6

Workers

DN(M)EL - long-term exposure - systemic effects - Inhalation

6,1 mg/m³

DN(M)EL - long-term exposure - local effects - Inhalation

12,1 mg/m³

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

Environment

PNEC aqua - freshwater	0,014 mg/l
PNEC aqua - marine water	0,0014 mg/l
PNEC aqua - intermittent releases	0,14 mg/l
PNEC STP	12,4 mg/l
PNEC sediment - freshwater	0,0307 mg/kg
PNEC sediment - marine water	0,00307 mg/kg
PNEC Air	No hazard identified
PNEC soil	0,00263 mg/kg
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	butyl-rubber
Evaluation	according to EN 374: level 5
Glove thickness	approx 0,3 mm
Break through time	approx 240 min
Suitable material	polyvinylchloride
Evaluation	Information derived from practical experience
Glove thickness	approx 0,8 mm

Skin and body protection

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

Respiratory protection

Respirator with AX/PA 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

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emission point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. 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>.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	colourless
Odour	pungent
Odour threshold	1 ppm
pH	No data available
Melting point/range	< -90 °C
Method	DIN ISO 3016
Boiling point/range	48,5 °C @ 1013 hPa
Method	OECD 103
Flash point	-30 °C
Method	DIN EN ISO 13736
Evaporation rate	No data available
Flammability (solid, gas)	Does not apply, the substance is a liquid
Lower explosion limit	2,6 Vol %
Upper explosion limit	17 Vol %

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
364	36,4	0,359	20	68	DIN EN 13016-2
1096	109,6	1,08	50	122	DIN EN 13016-2

Vapour density 1,8 (Air = 1) @ 37,8 °C (100 °F)

Relative density

Values	@ °C	@ °F	Method
0,7969	20	68	DIN 51757

Solubility 254 g/l @ 20 °C, in water

log Pow 0,2 @ 25 °C (77 °F) OECD 117

Autoignition temperature 195 °C @ 1013 hPa

Method DIN 51794

Decomposition temperature No data available

Viscosity 0,43 mm²/s @ 20°C

Method kinematic, OECD 114

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

associated with oxidizing properties

9.2. Other information

Molecular weight 58,08
Molecular formula C₃ H₆ O
log K_{oc} 0,441 calculated
Refractive index 1,362 @ 20 °C
Surface tension 71,5 mN/m (1 g/l @ 20°C (68°F))

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. Stable up to approximately 48 °C.

10.3. Possibility of hazardous reactions

Hazardous reactions occur in the presence of acids, base or oxidizing agents. This reaction is exothermic and may create heat. When finely distributed, self-ignition is possible. May form explosive peroxides.

10.4. Conditions to avoid

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

10.5. Incompatible materials

bases, amines, acids, oxidizing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

Acute toxicity				
Propionaldehyde (123-38-6)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	1690 mg/kg	rat, female	OECD 401
Inhalative	LC50	> 4,6 mg/l (4h)	rat, male/female	OECD 403
Dermal	LD50	2460 mg/kg	rabbit female	OECD 402

Propionaldehyde, CAS: 123-38-6

Assessment

The available data lead to the classification given in section 2

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

Irritation and corrosion				
Propionaldehyde (123-38-6)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	irritating	OECD 404	
Eyes	rabbit	severe irritation	OECD 405	

Propionaldehyde, CAS: 123-38-6

Assessment

The available data lead to the classification given in section 2
For respiratory irritation, no data are available

Sensitization				
Propionaldehyde (123-38-6)				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	
Skin	mouse female	not sensitizing	OECD 429	

Propionaldehyde, CAS: 123-38-6

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				
Propionaldehyde (123-38-6)				
Type	Dose	Species	Method	
Subchronic toxicity	NOAEC: 362 mg/m ³ (49 d)	rat, male	OECD 422	Inhalation
Subacute toxicity	NOAEC: 217 mg/m ³ (20 d)	rat		

Propionaldehyde, CAS: 123-38-6

Assessment

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

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Propionaldehyde (123-38-6)					
Type	Dose	Species	Evaluation	Method	
Reproductive toxicity	NOEC > 3620 mg/m ³	rat, parental		OECD 422	
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		mouse	negative	OECD 474	in vivo micronucleus test
Mutagenicity		human lymphocytes	negative	OECD 479 (SCE)	In vitro study
Mutagenicity		human hepatocytes	negative	OECD 482	In vitro study
Mutagenicity		CHED cells (chinese Hamster Embroonic Diploid)	positive	OECD 473 (Chromosomal Aberration)	In vitro study

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

Propionaldehyde, CAS: 123-38-6

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

Did not show mutagenic effects in animal experiments

Propionaldehyde, CAS: 123-38-6

Main symptoms

shortness of breath, cough, central nervous system depression, hypertensive effect, narcosis, headache, nausea, vomiting, unconsciousness.

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

no data available

Other adverse effects

Components of the product may be absorbed into the body by inhalation and ingestion.

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			
Propionaldehyde (123-38-6)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 88,7 mg/l	84/449/EEC C.2
Pimephales promelas (fathead minnow)	96h	EC50: 14 mg/l	
Desmodesmus subspicatus	72h	EC50: 260 mg/l (Growth rate)	DIN 38412, part 9
Pseudomonas putida	14 h	TTC: 124 mg/l	DIN 38412, part 8
Fish (fresh water) Poecilia reticulata (guppy)	14 d	EC50: 15 mg/l	OECD 204

12.2. Persistence and degradability

Propionaldehyde, CAS: 123-38-6

Biodegradation

91 - 97 % (28 d), activated sludge, aerobic, OECD 301 C.

Abiotic Degradation		
Propionaldehyde (123-38-6)		
Type	Result	Method
Hydrolysis	No data available	
Photolysis	Half-life (DT50): 17,51 h	SRC AOP v1.92

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

12.3. Bioaccumulative potential

Propionaldehyde (123-38-6)		
Type	Result	Method
log Pow	0,2 @ 25 °C (77 °F)	OECD 117
BCF	3,162, (calculated)	

12.4. Mobility in soil

Propionaldehyde (123-38-6)		
Type	Result	Method
Adsorption/Desorption	log Koc: 0,441	calculated
Surface tension	71,5 mN/m (1 g/l @ 20°C (68°F))	
Distribution to environmental compartments	Air: 4,52 Soil: 47,7 Water: 47,7 Sediment: 0,09	

12.5. Results of PBT and vPvB assessment

Propionaldehyde, CAS: 123-38-6

PBT and vPvB assessment

Not required

12.6. Other adverse effects

Propionaldehyde, CAS: 123-38-6

No data available

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)

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 1275

14.2. UN proper shipping name

Propionaldehyde

14.3. Transport hazard class(es)

3

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

14.4. Packing group II
14.5. Environmental hazards no
14.6. Special precautions for user
ADR Tunnel restriction code (D/E)
Classification Code F1
Hazard Number 33

ADN

ADN Container

14.1. UN number UN 1275
14.2. UN proper shipping name Propionaldehyde
14.3. Transport hazard class(es) 3
14.4. Packing group II
14.5. Environmental hazards no
14.6. Special precautions for user
Classification Code F1
Hazard Number 33

ADN

ADN Tanker

14.1. UN number UN 1275
14.2. UN proper shipping name Propionaldehyde
14.3. Transport hazard class(es) 3
Subsidiary Risk N3
14.4. Packing group II
14.5. Environmental hazards no
14.6. Special precautions for user
Classification Code F1

ICAO-TI / IATA-DGR

14.1. UN number UN 1275
14.2. UN proper shipping name Propionaldehyde
14.3. Transport hazard class(es) 3
14.4. Packing group II
14.5. Environmental hazards no
14.6. Special precautions for user no data available

IMDG

14.1. UN number UN 1275
14.2. UN proper shipping name Propionaldehyde
14.3. Transport hazard class(es) 3
14.4. Packing group II
14.5. Environmental hazards no
14.6. Special precautions for user
EmS F-E, S-D
14.7. Transport in bulk according to Annex

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

II of MARPOL and the IBC Code

Product name	Propionaldehyde
Ship type	3
Pollution category	Y

SECTION 15: Regulatory information

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

Regulation 1272/2008, Annex VI

Propionaldehyde, CAS: 123-38-6

Classification	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H335 Skin Irrit. 2; H315
Hazard pictograms	GHS02 Flame GHS07 Exclamation mark
Signal word	Danger
Hazard statements	H225, H319, H335, H315

DI 2012/18/EU (Seveso III)

Category	Annex I, part 1: P5a - c; depending on conditions
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DI 1999/13/EC (VOC Guideline)

Component	Status
Propionaldehyde CAS: 123-38-6	regulated

International Inventories

Propionaldehyde, CAS: 123-38-6

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2046230 (EU)
ENCS (2)-486 (JP)
ISHL (2)-486 (JP)
KECI KE-29254 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

15.2. Chemical safety assessment

The Chemical Safety Report (CSR) is not required.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended



Propionaldehyde
10640

Version / Revision 1

SECTION 16: Other information

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

H225: Highly flammable liquid and vapour.

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H332: Harmful if inhaled.

H335: May cause respiratory irritation.

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).

The annex is not required because the substance is registered as an intermediate under REACH

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 Chemicals makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other 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