

SAFETY DATA SHEET



n-Propanol
10570

Version / Revision 3 .00***
Supersedes Version 2 .00***

Revision Date 08-Dec-2016
Issuing date 08-Dec-2016

SECTION 1: Identification

1.1. Product identifier

Identification of the substance/preparation **n-Propanol**

CAS-No 71-23-8

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

Use of the Substance / Preparation Intermediate lubricant
Uses advised against None

1.3. Details of the supplier of the safety data sheet

Supplier **OXEA Corporation**
1505 West LBJ Freeway, Suite 400
Dallas, TX 75234
USA
Phone: +1 972 481 2700

Product Information Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

1.4. Emergency telephone number

Emergency telephone number in USA, call 800 424 9300
outside USA, call 703 527 3887, collect calls accepted
available 24/7***

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified in accordance with paragraph (d) of §1910.1200 (GHS-US classification).***

Serious eye damage/eye irritation Category 1, H318***
Target Organ Systemic Toxicant - Single exposure Category 3, H336***
Flammable liquid Category 3, H226***

OSHA Specified Hazards Not applicable.

2.2. Label elements

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Labeling according to §1910.1200 (GHS-US labeling).***

Hazard symbol(s)



Signal word

Danger***

Hazard statements

H226: Flammable liquid and vapor.
H318: Causes serious eye damage.
H336: May cause drowsiness or dizziness.***

Precautionary statements

Prevention

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground and bond container and receiving equipment.
P241: Use explosion-proof electrical/ ventilating/ lighting equipment.
P242: Use non-sparking tools.
P243: Take action to prevent static discharges.
P261: Avoid breathing gas/mist/vapours.
P271: Use only outdoors or in a well ventilated area.
P280: Wear protective gloves/eye protection/face protection.***

Response

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.
P310: Immediately call a POISON CENTER/doctor.***

Storage

P403 + P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.***

Disposal

P501: Dispose of contents/container in accordance with local regulation.***

2.3. Other hazards

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

Vapours may form explosive mixture with air

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

SECTION 3: Composition / information on ingredients

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3.1. Substances

Component	CAS-No	Concentration (%)
Propan-1-ol	71-23-8	> 99,8

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 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. 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

gastrointestinal discomfort, dizziness, drowsiness, nausea, weakness, abdominal pain, vomiting.

Special hazard

central nervous system effects, Lung irritation.

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. If ingested, irrigate the stomach using activated charcoal.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

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

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Under conditions giving incomplete combustion, hazardous gases produced may consist of:
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. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. 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

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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. 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 breaks and immediately after handling the product.

Advice on the protection of the environment

See Section 8: Environmental exposure controls.

Incompatible products

strong oxidizing agents
strong acids

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.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Store at temperatures not exceeding 38 °C/ 100 °F.

Unsuitable material

Attacks some forms of plastic and rubber

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

US ACGIH

Component	TWA (mg/m ³)	TWA (ppm)	STEL (mg/m ³)	STEL (ppm)
Propan-1-ol CAS: 71-23-8		100		
Component	Asphyxia	Carcinogenic category	Included w/o limits	Exposure as low as possible
Propan-1-ol CAS: 71-23-8		A4		

US OSHA Z-1

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Component	Ceiling (mg/m ³)	Ceiling (ppm)	PEL (mg/m ³)	PEL (ppm)	Skin Designation
Propan-1-ol CAS: 71-23-8			500	200	

Note

For details and further information please refer to the original regulation.

8.2. Exposure controls

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.

Individual protection measures, such as 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.

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 6
Glove thickness	approx 0,55 mm
Break through time	> 480 min

Suitable material	butyl-rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,3 mm
Break through time	> 480 min

Skin and body protection

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

Respiratory protection

Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH.

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Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion 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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid					
Colour	colourless					
Odour	alcoholic					
Odour threshold	< 0,07 - 100 mg/m ³					
pH	No data available					
Melting point/range	< -130 °F (< -90 °C) (Pour point)					
Method	DIN ISO 3016***					
Boiling point/range	207 °F (97 °C) @ 1 atm (101,3 kPa)					
Method	OECD 103***					
Flash point	73,4 °F (23 °C)					
Method	DIN 51755					
Evaporation rate	1,0 (n-Butyl acetate = 1)					
Flammability (solid, gas)	Does not apply, the substance is a liquid					
Lower explosion limit	2,1 Vol %					
Upper explosion limit	13,5 Vol %					
Vapour pressure	***					
Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method	
26	2,6	0,026	20	68	DIN EN	
					13016-2***	
133	13,3	0,133	50	122	DIN EN	
					13016-2***	
Vapour density	2,1 (Air = 1) @ 20 °C (68 °F)					
Relative density	***					
Values	@ °C	@ °F	Method			
0,8036	20	68	DIN 51757			
Solubility	miscible, in water, OECD 105***					
log Pow	0,2 (measured) OECD 117					
Autoignition temperature	743 °F (395 °C) @ 1004 hPa***					
Method	DIN 51794					
Decomposition temperature	No data available					
Viscosity	2,21 mPa*s @ 68 °F (20 °C)					
Method	ASTM D445, dynamic					

9.2. Other information

Molecular weight	60,10
Molecular formula	C ₃ H ₈ O

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Oxidizing properties	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
Refractive Index	1,386 @ 68 °F (20 °C)
Heat of combustion	2021 kJ/mol @ 25 °C (77 °F)
Explosive properties	Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties
Surface tension	70,8 mN/m (1 g/l @ 20°C), 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

Vapours may form explosive mixture with air.***

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 oxidizing agents, strong acids.

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***

Propan-1-ol, CAS: 71-23-8

Main symptoms

central nervous system depression, gastrointestinal discomfort, dizziness, drowsiness, nausea, weakness, abdominal pain, vomiting.

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***

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Acute toxicity				
Propan-1-ol (71-23-8)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	1870-8000 mg/kg	rat***	
Inhalative	LC50	> 33,8 mg/l (4 h)	rat, male/female	OECD 403
Dermal	LD50	4032 mg/kg	rabbit	OECD 402

Propan-1-ol, CAS: 71-23-8

Assessment

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

Acute oral toxicity

Acute dermal toxicity

Acute inhalation toxicity***

Irritation and corrosion				
Propan-1-ol (71-23-8)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	No skin irritation	OECD 404	
Eyes	rabbit	severe irritation	OECD 405	

Propan-1-ol, CAS: 71-23-8

Assessment

The available data lead to the classification given in section 2

For respiratory irritation, no data are available***

Sensitization				
Propan-1-ol (71-23-8)				
Target Organ Effects	Species	Evaluation	Method	
Skin	mouse	not sensitizing	MEST	
Skin	guinea pig	not sensitizing	OECD 406	

Propan-1-ol, CAS: 71-23-8

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				
Propan-1-ol (71-23-8)				
Type	Dose	Species	Method	
Subacute toxicity***	NOAEC: 1000 ppm***	rat, male/female***	Inhalation***	

Propan-1-ol, CAS: 71-23-8

Assessment

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

STOT RE***

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Carcinogenicity, Mutagenicity, Reproductive toxicity					
Propan-1-ol (71-23-8)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study***
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study***
Mutagenicity		V79 cells, Chinese hamster	negative	OECD 473 (Chromosomal Aberration)	In vitro study***
Reproductive toxicity	NOEC 8730 mg/m ³	rat, male/female		Inhalation OECD 413***	
Developmental Toxicity	NOAEC: 8730 mg/m ³	rat		OECD 414, Inhalative	Developmental toxicity***
Developmental Toxicity	LOAEC: 17460 mg/m ³ ***	rat		OECD 414, Inhalative	Developmental toxicity***

Propan-1-ol, CAS: 71-23-8

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***

Propan-1-ol, CAS: 71-23-8

Aspiration toxicity

Based on the viscosity a potential aspiration hazard cannot be excluded***

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			
Propan-1-ol (71-23-8)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 3644 mg/l	DIN 38412, part 11
Gammarus pulex	48h	LC50: 1000 mg/l	
Pseudokirchneriella subcapitata	48h	EC50: 9170 mg/l (Growth rate)	
Chlorella pyrenoidosa	48h	NOEC: 1150 mg/l	Growth rate

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Pimephales promelas (fathead minnow)	96h	LC50: 4555 mg/l	OECD 203
Activated sludge (domestic)	3 h	IC50: > 1000 mg/l	OECD 209

12.2. Persistence and degradability

Propan-1-ol, CAS: 71-23-8

Biodegradation

75 % (20 d), Readily biodegradable, Sewage, domestic, aerobic, non-adapted, Closed Bottle test.

Abiotic Degradation		
Propan-1-ol (71-23-8)		
Type	Result	Method
Hydrolysis***	not expected***	
Photolysis***	not expected***	

12.3. Bioaccumulative potential

Propan-1-ol (71-23-8)		
Type	Result	Method
log Pow***	0,2***	measured, OECD 117***
BCF***	0,88***	calculated***

12.4. Mobility in soil

Propan-1-ol (71-23-8)		
Type	Result	Method
Surface tension***	70,8 mN/m (1 g/l @ 20°C)***	OECD 115***
Adsorption/Desorption***	log Koc: 0,633***	calculated***
Distribution to environmental compartments***	Air: 3,87% Soil: 3,87% % Water: 96,13%***	

12.5. Results of PBT and vPvB assessment

Propan-1-ol, CAS: 71-23-8

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

Propan-1-ol, CAS: 71-23-8

No data available***

Note

Avoid release to the environment.

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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.

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

D.O.T. (49CFR)

14.1. UN number	*** UN 1274
14.2. UN proper shipping name	*** n-Propanol
14.3. Transport hazard class(es)	*** 3
14.4. Packing group	*** III***
14.5. Environmental hazards	no***
14.6. Special precautions for user	***
Emergency Response Guide	129

ICAO-TI / IATA-DGR

14.1. UN number	UN 1274
14.2. UN proper shipping name	n-Propanol
14.3. Transport hazard class(es)	3
14.4. Packing group	III***
14.5. Environmental hazards	no
14.6. Special precautions for user	no data available

IMDG

14.1. UN number	UN 1274
14.2. UN proper shipping name	n-Propanol
14.3. Transport hazard class(es)	3
14.4. Packing group	III***
14.5. Environmental hazards	no

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14.6. Special precautions for user

EmS F-E, S-D

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Product name	n-Propyl alcohol***
Ship type	3
Pollution category	Y

SECTION 15: Regulatory information

Federal and State Regulations

Components of the product are listed in the quoted regulations. For details please refer to the regulations directly. This list is not exhaustive, please check for other applicable regulations.

Federal Regulations

This product is listed on the TSCA inventory

Propan-1-ol, CAS: 71-23-8

CERCLA Hazardous Substance

CERCLA RQ 100 LBS

State Regulations

Propan-1-ol, CAS: 71-23-8

CA Hazardous Substances (Director's) List

IL Chemical Safety Act

MA RTK List

MN Hazardous Substances List

NY RTK List

PA RTK List

RI RTK List

International Inventories

Propan-1-ol, CAS: 71-23-8

AICS (AU)

DSL (CA)

IECSC (CN)

EC-No. 2007469 (EU)

ENCS (2)-207 (JP)

ISHL (2)-207 (JP)

KECI KE-29362 (KR)

INSQ (MX)

PICCS (PH)

TSCA (US)

NZIoC (NZ)

TCSI (TW)

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SECTION 16: Other information

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Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard	1
Fire Hazard	3
Reactivity	0

HMS (Hazardous Material Information System)

Health Hazard	2
Flammability	3
Physical Hazard	0

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 Oxea 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 Oxea homepage (www.oxea-chemicals.com).

Disclaimer

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End of Safety Data Sheet