SAFETY DATA SHEET

n-Propanol (Biocide Quality)
11526

Version / Revision	3	**Revision Date**	07-May-2020
Supersedes Version	2.01	**Issuing date**	15-May-2020

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

1.1. Product identifier

Identification of the substance/preparation **n-Propanol (Biocide Quality)**

CAS-No 71-23-8
EC No. 200-746-9
Registration number (REACh) -

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

Identified uses Biocidal active substance according to regulation 528/2012 (BPR)
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 2, H225
Serious eye damage/eye irritation Category 1, H318
Target Organ Systemic Toxicant - Single exposure Category 3, H336

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.
H318: Causes serious eye damage.
H336: May cause drowsiness or dizziness.

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.
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.
P403 + P235: Store in a well ventilated place. Keep cool.

2.3. Other hazards

Vapours may form explosive mixture with air
Components of the product may be absorbed into the body by inhalation and ingestion
Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback

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	REACh-No	1272/2008/EC	Concentration (%)
Propan-1-ol	71-23-8	01-2119486761-29	Flam. Liq. 2; H225 Eye Dam. 1; H318 STOT SE 3; H336	> 99,8

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 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

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

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

Temperature class
T2

7.3. Specific end use(s)

Biocidal active substance according to regulation 528/2012 (BPR)

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits European Union

No exposure limits established

Exposure limits UK

EH40 WELs

Component	TWA (mg/m³)	TWA (ppm)	STEL (mg/m³)	STEL (ppm)
Propan-1-ol CAS: 71-23-8	500	200	625	250

EH40 WELs and Appendix 5 Carcinogens

Component	Skin Absorption	Asphyxia	Respiratory irritant	included w/o limits	Carcinogen
Propan-1-ol CAS: 71-23-8	Yes				

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

DNEL & PNEC

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

DN(M)EL - long-term exposure - systemic effects - Inhalation	268 mg/m³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	1723 mg/m³
DN(M)EL - long-term exposure - systemic effects - Dermal	136 mg/kg bw/day

General population

DN(M)EL - long-term exposure - systemic effects - Inhalation	80 mg/m³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	1036 mg/m³
DN(M)EL - long-term exposure - systemic effects - Dermal	81 mg/kg bw/day
DN(M)EL - long-term exposure - systemic effects - Oral	61 mg/kg bw/day

Environment

PNEC aqua - freshwater	10 mg/l
PNEC aqua - marine water	1 mg/l
PNEC aqua - intermittent releases	10 mg/l
PNEC STP	96 mg/l
PNEC sediment - freshwater	22,8 mg/kg
PNEC sediment - marine water	2,28 mg/kg
PNEC soil	2,2 mg/kg
Secondary poisoning	No potential for bioaccumulation

8.2. Exposure controls

Special adaptations (REACh)
This substance is exempted from REACh (1907/2006).

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 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 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
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/m³
pH	No data available
Melting point/range	< -90 °C (Pour point)
Method	DIN ISO 3016
Boiling point/range	97 °C @ 1013 hPa
Method	OECD 103
Flash point	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	395 °C @ 1004 hPa
Method	DIN 51794
Decomposition temperature	No data available
Viscosity	2,21 mPa*s @ 20 °C
Method	ASTM D445, dynamic

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	60,10
Molecular formula	C3 H8 O
Refractive index	1,386 @ 20 °C
Heat of combustion	2021 kJ/mol @ 25 °C (77 °F)
Surface tension	70,8 mN/m (1 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

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

Acute toxicity				
Propan-1-ol (71-23-8)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	1870-8000 mg/kg	rat	Weight of evidence
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

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/m³	rat, male/female		Inhalation OECD 413	

Developmental Toxicity	NOAEC: 8730 mg/m³	rat		OECD 414, Inhalative	
Developmental Toxicity	LOAEC: 17460 mg/m³	rat		OECD 414, Inhalative	

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
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
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.

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
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 (68°F))	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

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 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	
ADR Tunnel restriction code	(D/E)
Classification Code	F1
Hazard Number	30

ADN ADN: Container and Tanker

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	
Classification Code	F1
Hazard Number	30

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
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

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

Regulation 1272/2008, Annex VI

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

Classification	Flam. Liq. 2; H225 Eye Dam. 1; H318 STOT SE 3; H336
Hazard pictograms	GHS02 Flame GHS05 Corrosion GHS07 Exclamation mark
Signal word	Danger
Hazard statements	H225, H318, H336

DI 2012/18/EU (Seveso III)

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

DI 1999/13/EC (VOC Guideline)

Component	Status
Propan-1-ol CAS: 71-23-8	regulated

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)

National regulatory information Great Britain

Releases to air (Pollution Inventory Substances)
not subject

Releases to water (Pollution Inventory Substances)
not subject

Releases to sewer (Pollution Inventory Substances)
not subject

For details and further information please refer to the original regulation

15.2. Chemical safety assessment

The Chemical Safety Report (CSR) is not required.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3
H225: Highly flammable liquid and vapour.
H318: Causes serious eye damage.
H336: May cause drowsiness or dizziness.

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 this material is exempted from REACh

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End of Safety Data Sheet