

# SAFETY DATA SHEET



n-Butyraldehyde  
10450

Version / Revision  
Supersedes Version

4.02  
4.01\*\*\*

Revision Date  
Issuing date

10-Feb-2021  
10-Feb-2021

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

### 1.1. Product identifier

Identification of the  
substance/preparation

**n-Butyraldehyde**

CAS-No 123-72-8  
EC No. 204-646-6  
Registration number (REACH) 01-2119488889-07

### 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

**OQ Chemicals Corporation**  
15375 Memorial Drive  
West Memorial Place I  
Suite 300  
Houston, TX 77079  
USA

Product Information

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

### 1.4. Emergency telephone number

Emergency telephone number +65 3158 1198 (available 24/7)  
000800 100 7479 (for domestic shipments only)

## 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 2, H319

**Additional information**

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

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## 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.  
H319: Causes serious eye irritation.

Precautionary statements

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
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.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P313: Get medical advice/attention.  
P403 + P235: Store in a well ventilated place. Keep cool.

## 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

Potential for exothermic hazard

Risk of receptacle bursting

Auto ignition on large surfaces

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

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 (%)
Butyraldehyde	123-72-8	01-2119488889-07	Flam. Liq. 2; H225 Eye Irrit. 2; H319	> 98,5

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

## SECTION 4: First aid measures

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## 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.

### Eyes

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

### Skin

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

### 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.

### Special hazard

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 symptomatically. In case of lung irritation, first treatment with cortisone spray. Control of circulatory system. Control of kidney function. Control of electrolyte metabolism.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

alcohol-resistant foam, dry chemical, carbon dioxide (CO<sub>2</sub>), 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 (CO<sub>2</sub>)

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

Risk of receptacle bursting

### 5.3. Advice for firefighters

#### Special protective equipment for firefighters

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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.

#### **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**

acids and bases  
amines  
oxidizing agents

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## 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. Handle under nitrogen, protect from moisture. Store at temperatures not exceeding 30 °C/ 86 °F.

### Suitable material

stainless steel, aluminium

### Unsuitable material

mild steel

### 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 India

No exposure limits established.

### 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.

#### 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.

#### **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.

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## 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.

<b>Suitable material</b>	butyl-rubber
<b>Evaluation</b>	according to EN 374: level 3
<b>Glove thickness</b>	approx 0,3 mm
<b>Break through time</b>	< 60 min
<b>Suitable material</b>	polyvinylchloride
<b>Evaluation</b>	Information derived from practical experience
<b>Glove thickness</b>	approx 0.8 mm

## 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

## Skin and body protection

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

## 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

<b>Appearance</b>	liquid				
<b>Colour</b>	colourless				
<b>Odour</b>	pungent				
<b>Odour threshold</b>	No data available				
<b>pH</b>	3 (50 g/l in water @ 20 °C (68 °F)) OECD 105				
<b>Melting point/range</b>	< -20 °C @ 1013 hPa				
<b>Boiling point/range</b>	75 °C @ 1013 hPa				
<b>Flash point</b>	-6,7 °C @ 1013 hPa				
<b>Method</b>	closed cup, ASTM D-93				
<b>Evaporation rate</b>	7,8 (n-Butyl acetate = 1)				
<b>Flammability (solid, gas)</b>	Does not apply, the substance is a liquid				
<b>Lower explosion limit</b>	1,7 Vol %				
<b>Upper explosion limit</b>	12,5 Vol %				
<b>Vapour pressure</b>					
Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
144	14,4	0,142	20	68	
<b>Vapour density</b>	2,5 (Air = 1) @ 20 °C (68 °F)				
<b>Relative density</b>					
Values	@ °C	@ °F	Method		
0,81	20	68	OECD 109		

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<b>Solubility</b>	50 g/l @ 20 °C, in water, OECD 105
<b>log Pow</b>	1,3 @ 20 °C (68 °F), OECD 107
<b>Autoignition temperature</b>	190 °C @ 1013 hPa
<b>Method</b>	ASTM E 659
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	0,43 mPa*s @ 20 °C
<b>Method</b>	dynamic, ISO 3219
<b>Oxidizing properties</b>	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
<b>Explosive properties</b>	Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

## 9.2. Other information

<b>Molecular weight</b>	72,11
<b>Molecular formula</b>	C4 H8 O
<b>log Koc</b>	0,707 calculated
<b>Refractive index</b>	1,379 @ 20 °C
<b>Heat of combustion</b>	2479 kJ/mol @ 25 °C (77 °F)
<b>Surface tension</b>	70 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

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

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Acute toxicity				
Butyraldehyde (123-72-8)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	> 2000 mg/kg	rat	Weight of evidence
Dermal	LD50	> 2000 mg/kg (4 h)	rabbit	EPA OPP 81-2
Inhalative	LC50	> 5,4 mg/l (4h)	rat	OECD 403

## Butyraldehyde, CAS: 123-72-8

### Assessment

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

Acute oral toxicity  
Acute dermal toxicity  
Acute inhalation toxicity  
STOT SE

Irritation and corrosion				
Butyraldehyde (123-72-8)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	No skin irritation	OECD 404	4h
Eyes	rabbit	irritating	84/449/EEC B.5	24h
Respiratory tract	mouse	RD50: 1015-1532 ppm		10 min

## Butyraldehyde, CAS: 123-72-8

### Assessment

The available data lead to the classification given in section 2

Sensitization				
Butyraldehyde (123-72-8)				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	

## Butyraldehyde, CAS: 123-72-8

### 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				
Butyraldehyde (123-72-8)				
Type	Dose	Species	Method	
Subchronic toxicity	LOAEL: 75 mg/kg/d (13 weeks)	rat, male/female	Oral	
Subchronic toxicity	NOAEC: 0,15 mg/l/d (12 weeks)	rat, male/female	Inhalation	

## Butyraldehyde, CAS: 123-72-8

### Assessment

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

Carcinogenicity, Mutagenicity, Reproductive toxicity
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<b>Butyraldehyde (123-72-8)</b>					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	Ames test	In vitro study
Mutagenicity		V79 cells, Chinese hamster	positive (without metabolic activation)	Gene mutations SLRL	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	Chromosomal Aberration	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	positive	In-vitro Sister Chromatid Exchange (ECS)	In vitro study
Mutagenicity		CHO (Chinese Hamster Ovary) cells	negative	In-vitro Sister Chromatid Exchange (ECS)	in vivo
Mutagenicity		human hepatocytes rat, hepatocytes	negative	DNA-damage	In vitro study
Mutagenicity		mouse Drosophila melanogaster	negative	Weight of evidence Gene mutations SLRL Chromosomal Aberration Micronucleus	in vivo
Reproductive toxicity	LOAEC: 150 ppm	rat, parental		Inhalation	rat, parental read across
Reproductive toxicity	NOAEC: 1500 ppm	rat, parental		Inhalation	Reproductive toxicity: read across
Developmental Toxicity	NOAEC: 3 mg/l	rat		OECD 412	Maternal toxicity read across
Developmental Toxicity	NOAEC: 12 mg/l	rat		OECD 412	Developmental toxicity read across
Carcinogenicity	No data available				
Mutagenicity		human lymphocytes	negative (without metabolic activation)	In-vitro Sister Chromatid Exchange (ECS)	
Mutagenicity		mouse	positive	micronucleus test	in vivo
Reproductive toxicity	NOAEC: 750 ppm	rat, 1. Generation, male/female		Inhalation	read across

## **Butyraldehyde, CAS: 123-72-8**

### **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**

Did not show reprotoxic effects in animal experiments  
No cancer study was conducted

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## Main symptoms

shortness of breath.

## Target Organ Systemic Toxicant - Single exposure

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

STOT SE

## 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

##### Butyraldehyde (123-72-8)

Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	24h	EC50: 195 mg/l	DIN 38412, part 11
Pimephales promelas (fathead minnow)	96h	LC50: 25,8 mg/l	EPA-660/3-75-009
Pseudomonas putida	16 h	EC0: 100 mg/l (MIC)	DIN 38412, part 8

#### Long term toxicity

##### Butyraldehyde (123-72-8)

Type	Species	Dose	Method
Mortality	Poecilia reticulata (guppy)	LC50: 13,7 mg/l/14d	OECD 204

### 12.2. Persistence and degradability

#### Butyraldehyde, CAS: 123-72-8

##### Biodegradation

46 - 57 % (4-6 d), activated sludge, non-adapted, aerobic, OECD 301 C.

##### Abiotic Degradation

##### Butyraldehyde (123-72-8)

Type	Result	Method
Photolysis	Half-life (DT50): 5 h	calculated SRC AOP v1.92
Hydrolysis	No data available	

### 12.3. Bioaccumulative potential

##### Butyraldehyde (123-72-8)

Type	Result	Method
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log Pow	1,3 @ 20 °C (68 °F)	measured, OECD 107
BCF	3,162	calculated

## 12.4. Mobility in soil

<b>Butyraldehyde (123-72-8)</b>		
Type	Result	Method
Surface tension	70 mN/m (1 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	Koc: 5,1	calculated
Distribution to environmental compartments	no data available	

## 12.5. Results of PBT and vPvB assessment

### Butyraldehyde, CAS: 123-72-8

#### 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

### Butyraldehyde, CAS: 123-72-8

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

### ICAO-TI / IATA-DGR

14.1. UN number	UN 1129
14.2. UN proper shipping name	(Butyraldehyde)
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

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## IMDG

14.1. UN number	UN 1129
14.2. UN proper shipping name	(Butyraldehyde)
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 II of MARPOL and the IBC Code	
Product name	Butyraldehyde
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

##### Butyraldehyde, CAS: 123-72-8

Classification	Flam. Liq. 2; H225
Hazard pictograms	GHS02 Flame
Signal word	Danger
Hazard statements	H225

#### International Inventories

##### Butyraldehyde, CAS: 123-72-8

AICS (AU)  
DSL (CA)  
IECSC (CN)  
EC-No. 2046466 (EU)  
ENCS (2)-494 (JP)  
ISHL (2)-494 (JP)  
KECI KE-03746 (KR)  
INSQ (MX)  
PICCS (PH)  
TSCA (US)  
NZIoC (NZ)  
TCSI (TW)

#### National regulatory information India

Hazardous Chemicals, Schedule 2: Threshold Quantities at an Isolated Storage  
not listed

Hazardous Chemicals, Schedule 3: Threshold Quantities in an Industrial Installation

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not listed

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

## **SECTION 16: Other information**

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

H225: Highly flammable liquid and vapour.

H319: Causes serious eye 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](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](http://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 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**