

## Chemical Safety Data Sheet MSDS / SDS

## Butyraldehyde

Revision Date:2025-01-11 Revision Number:1

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

## Product identifier

Product name : Butyraldehyde  
CBnumber : CB6852977  
CAS : 123-72-8  
EINECS Number : 204-646-6  
Synonyms : butanal,BUTYRALDEHYDE

## Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P370+P378 In case of fire: Use ... for extinction.

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

P405 Store locked up.

P501 Dispose of contents/container to.....

#### **Hazard statements**

H225 Highly Flammable liquid and vapour

H319 Causes serious eye irritation

H341 Suspected of causing genetic defects

H370 Causes damage to organs

H402 Harmful to aquatic life

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: Butyraldehyde
Synonyms	: butanal,BUTYRALDEHYDE
CAS	: 123-72-8
EC number	: 204-646-6
MF	: C4H8O
MW	: 72.11

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

Show this material safety data sheet to the doctor in attendance.

#### **If inhaled**

After inhalation: fresh air.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### **If swallowed**

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### **Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>) Foam Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Pay attention to flashback.

Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

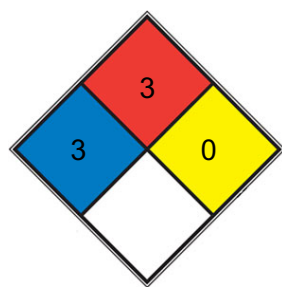
### Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

### Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



**HEALTH 3** Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

**FIRE 3** Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, [acetone](#))

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

**SPEC.**

**HAZ.**

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb? ). Dispose of properly. Clean up affected area.

### Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### Precautions for safe handling

### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### Hygiene measures

Change contaminated clothing. Wash hands after working with substance. For precautions see section 2.2.

### Conditions for safe storage, including any incompatibilities

### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

### Storage stability

Recommended storage temperature 2 - 8 °C

Stench. Dry residue is explosive.

### Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### control parameter

## Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

## Exposure controls

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact Material: butyl-rubber

Minimum layer thickness: 0,7 mm Break through time: 60 min

Material tested: Butoject? (KCL 898)

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

### Exposure limits

No exposure limit is set for n-butyraldehyde.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	colorless clear, liquid
Odour	pungent
Odour Threshold	0.00067ppm
pH	6 - 7 at 71 g/l at 20 °C
Melting point/freezing point	Melting point/range: -96 °C - lit.
Initial boiling point and boiling range	75 °C - lit.
Flash point	< 10 °C - Pensky-Martens closed cup - ASTM D 93
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 11,1 %(V) Lower explosion limit: 1,7 %(V)
Vapour pressure	144 hPa at 20 °C - OECD Test Guideline 104

Vapour density	2.5 (vs air)
Relative density	0,8 g/cm <sup>3</sup> at 25 °C - lit. 0,81 at 20 °C - OECD Test Guideline 109
Water solubility	50 g/l at 20 °C - OECD Test Guideline 105- completely soluble
Partition coefficient: n-octanol/water	log Pow: 1,3 at 20 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
Autoignition temperature	190 °C at 1.013 hPa - ASTM E-659
Decomposition temperature	log Pow: 1,3 at 20 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,43 mPa.s at 20 °C
Explosive properties	No data available
Oxidizing properties	No data available

### Other safety information

Surface tension 70 mN/m at 1g/l at 20 °C

- OECD Test Guideline 115

## SECTION 10: Stability and reactivity

### Reactivity

Vapors may form explosive mixture with air.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

increased reactivity with:

Amines

Risk of ignition or formation of inflammable gases or vapours with: fuming sulfuric acid

Strong oxidizing agents Nitric acid

Exothermic reaction with: Bases

Containment with

chlorosulfonic acid Risk of explosion with:

Containment with

sulfuric acid

### Conditions to avoid

Warming.

### Incompatible materials

No data available

### Hazardous decomposition products

In the event of fire: see section 5

## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 5.890 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5,46 mg/l (OECD Test Guideline 403)

Symptoms: Possible damages: mucosal irritations, Lung edema, Symptoms may be delayed.

LD50 Dermal - Rabbit - 3.560 mg/kg

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes. - 24 h (Directive 67/548/EEC, Annex V, B.5.)

#### Respiratory or skin sensitization

Buehler Test - Guinea pig Result: negative

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation Result: negative

Remarks: (ECHA)

Test Type: Micronucleus test Species: Mouse

Cell type: Bone marrow

Result: positive Remarks: (ECHA)

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

#### Toxicity

Single-dose LD50 orally in rats: 5.89 g/kg (Smyth)

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## SECTION 12: Ecological information

### Toxicity

### **Toxicity to fish**

static test LC50 - Pimephales promelas (fathead minnow) - 25,8 mg/l

- 96 h (US-EPA)

### **Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - Daphnia magna (Water flea) - 195 mg/l - 24 h (DIN 38412)

### **Persistence and degradability**

Biodegradability aerobic - Exposure time 5 d

Result: 46 - 57 % - Readily biodegradable. (OECD Test Guideline 301C)

Ratio BOD/ThBOD 28 - 43 %

### **Bioaccumulative potential**

No bioaccumulation is to be expected ( $\log Pow \leq 4$ ).

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **Toxics Screening Level**

The initial threshold screening level (ITSL) for dipropyl ketone is 250 µg/m<sup>3</sup> based on an annual averaging time.

### **Other adverse effects**

No data available

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## **SECTION 13: Disposal considerations**

### **Waste treatment methods**

#### **Incompatibilities**

May form explosive mixture with air. Butyraldehyde can presumably form explosive peroxides, and may polymerize due to heat or contact with acids or alkalis. Incompatible with oxidizers; contact may cause fires or explosions. Keep away from alkaline materials, strong bases, strong acids, oxoacids, epoxides, caustics. May accumulate static electrical charges, and may cause ignition of its vapors.

#### **Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### **Waste Disposal**

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. All federal, state, and local environmental regulations must be observed.

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## **SECTION 14: Transport information**



**UN number**

ADR/RID: 1129 IMDG: 1129 IATA: 1129

**UN proper shipping name**

ADR/RID: BUTYRALDEHYDE IMDG: BUTYRALDEHYDE IATA: Butyraldehyde

**Transport hazard class(es)**

ADR/RID: 3 IMDG: 3 IATA: 3

**Packaging group**

ADR/RID: II IMDG: II IATA: II

**Environmental hazards**

ADR/RID: no IMDG Marine pollutant: no IATA: no

**Special precautions for user**

No data available

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## SECTION 15: Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture****Regulations on the Safety Management of Hazardous Chemicals**

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

**Measures for Environmental Management of New Chemical Substances**

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

EC Inventory:Listed.

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

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## SECTION 16: Other information

**Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

## Other Information

Check for peroxides prior to distillation; eliminate if found.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.