



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/23/2013

Version 1.1

## SECTION 1. Identification

### Product identifier

Product number	801555
Product name	Butyraldehyde for synthesis

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

Identified uses	Chemical for synthesis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   SDS Phone Support: +1-978-715-1335   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 2, H225

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*

Danger

*Hazard Statements*

H225 Highly flammable liquid and vapor.

*Precautionary Statements*

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

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

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**OSHA Hazards**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

Formula	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CHO	C <sub>4</sub> H <sub>8</sub> O (Hill)
CAS-No.	123-72-8	
Molar mass	72.11 g/mol	

**Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

*butyraldehyde (>= 90 % - <= 100 % )*

123-72-8

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**SECTION 4. First aid measures**

**Description of first-aid measures**

*Inhalation*

After inhalation: fresh air.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*

After eye contact: rinse out with plenty of water.

*Ingestion*

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

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

irritant effects, Cough, Dermatitis

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

No information available.

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**SECTION 5. Fire-fighting 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**

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Combustible.  
Vapors are heavier than air and may spread along floors.  
Forms explosive mixtures with air at ambient temperatures.  
Pay attention to flashback.

## Advice for firefighters

*Special protective equipment for fire-fighters*

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

*Further information*

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### Environmental precautions

Do not empty into 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. Chemisorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

*Advice on protection against fire and explosion*

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

### Conditions for safe storage, including any incompatibilities

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

Store at +15°C to +25°C (+59°F to +77°F).

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

Contains no substances with occupational exposure limit values.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

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## Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Change contaminated clothing. Wash hands after working with substance.

### Eye/face protection

Safety glasses

### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### Other protective equipment:

Flame retardant antistatic protective clothing

### Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	stinging
Odor Threshold	No information available.
pH	6 - 7 at 71 g/l 68 °F (20 °C)
Melting point	-99 °C
Boiling point/boiling range	167 - 169 °F (75 - 76 °C) at 1,013 hPa
Flash point	10 °F (-12 °C) Method: DIN 51755 Part 1
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.7 %(V)
Upper explosion limit	11.1 %(V)

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Vapor pressure	116 hPa at 68 °F (20 °C)
Relative vapor density	2.49
Relative density	0.80 g/cm³ at 68 °F (20 °C)
Water solubility	71 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 0.79 Bioaccumulation is not expected (log Pow <1). (External MSDS)
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Ignition temperature	374 °F (190 °C)

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**SECTION 10. Stability and reactivity**

**Reactivity**

has a corrosive effect  
Vapors may form explosive mixture with air.

**Chemical stability**

Sensitive to air.

**Possibility of hazardous reactions**

increased reactivity with:

Amines

Risk of ignition or formation of inflammable gases or vapors 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.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Exposure to moisture.

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**Incompatible materials**  
no information available

**Hazardous decomposition products**  
no information available

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**SECTION 11. Toxicological information**

**Information on toxicological effects**

*Likely route of exposure*

Inhalation, Eye contact, Skin contact

*Acute oral toxicity*

LD50 rat: 2,490 mg/kg (RTECS)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

*Acute inhalation toxicity*

LC50 rat: 49 mg/l; 4 h (External MSDS)

*Acute dermal toxicity*

LD50 rabbit: 2,848 mg/kg  
(RTECS)

*Skin irritation*

rabbit

Result: No irritation

OECD Test Guideline 404

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

*Eye irritation*

rabbit

Result: No eye irritation

OECD Test Guideline 405

*Sensitization*

Result: negative

(External MSDS)

*Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

**Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

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NTP carcinogen by OSHA.  
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

### Further information

After absorption of large quantities:

Lung edema

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### Ecotoxicity

#### *Toxicity to fish*

LC50 Pimephales promelas (fathead minnow): 26 mg/l; 96 h (External MSDS)

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

EC50 Daphnia magna (Water flea): 195 mg/l; 24 h (External MSDS)

### Persistence and degradability

#### *Biodegradability*

> 90 %

OECD Test Guideline 301A

Readily biodegradable.

### Bioaccumulative potential

#### *Partition coefficient: n-octanol/water*

log Pow: 0.79

Bioaccumulation is not expected (log Pow <1). (External MSDS)

### Mobility in soil

No information available.

#### *Additional ecological information*

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number UN 1129  
Proper shipping name BUTYRALDEHYDE  
Class 3  
Packing group II  
Environmentally hazardous --

### Air transport (IATA)

UN number UN 1129  
Proper shipping name BUTYRALDEHYDE  
Class 3  
Packing group II  
Environmentally hazardous --  
Special precautions for user no

### Sea transport (IMDG)

UN number UN 1129  
Proper shipping name BUTYRALDEHYDE  
Class 3  
Packing group II  
Environmentally hazardous --  
Special precautions for user yes  
EmS F-E S-D

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## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Flammable Liquid

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

#### SARA 311/312 Hazards

Fire Hazard

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

##### *Ingredients*

butyraldehyde

123-72-8

#### SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.



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**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

**DEA List I**

Not listed

**DEA List II**

Not listed

**US State Regulations**

**Massachusetts Right To Know**

*Ingredients*  
butyraldehyde

**Pennsylvania Right To Know**

*Ingredients*  
butyraldehyde

**New Jersey Right To Know**

*Ingredients*  
butyraldehyde

**California Prop 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

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

H225 Highly flammable liquid and vapor.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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