



# MATERIAL SAFETY DATA SHEET

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

Revision Date 08/22/2013

Version 1.1

## SECTION 1. Identification

### Product identifier

Product number	800871
Product name	Bromoethane 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  
Carcinogenicity, Category 2, H351  
Acute toxicity, Category 4, Inhalation, H332  
Acute toxicity, Category 4, Oral, H302

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.  
H302 + H332 Harmful if swallowed or if inhaled.  
H351 Suspected of causing cancer.

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## *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.

P281 Use personal protective equipment as required.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

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

## **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	C <sub>2</sub> H <sub>5</sub> Br (Hill)
CAS-No.	74-96-4
Molar mass	108.96 g/mol

## **Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

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

74-96-4

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## **SECTION 4. First aid measures**

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

#### *Inhalation*

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

#### *Skin contact*

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

#### *Eye contact*

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

#### *Ingestion*

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

Never give anything by mouth to an unconscious person.

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

irritant effects, Cough, Shortness of breath, Dizziness, narcosis, agitation, spasms, euphoria, Nausea, Vomiting, drowsiness

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

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No information available.

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### SECTION 5. Fire-fighting measures

#### Extinguishing media

*Suitable extinguishing media*

Water, 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

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

hydrogen bromide

#### Advice for firefighters

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system. Remove container from danger zone and cool with water.

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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. Avoid substance contact. 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

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

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

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

## **SECTION 8. Exposure controls/personal protection**

### **Exposure limit(s)**

#### *Ingredients*

Basis	Value	Threshold limits	Remarks
<i>bromoethane</i> 74-96-4			
ACGIH	Time Weighted Average (TWA): Skin designation:	5 ppm	Can be absorbed through the skin.
OSHA_TRANS	PEL:	200 ppm 890 mg/m³	
Z1A	Time Weighted Average (TWA):  Short Term Exposure Limit (STEL):	200 ppm 890 mg/m³  250 ppm 1,110 mg/m³	

### **Engineering measures**

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

### **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*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face 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.

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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	ether-like
Odor Threshold	No information available.
pH	No information available.
Melting point	-118 °C
Boiling point/boiling range	99 - 102 °F ( 37 - 39 °C) at 1,013 hPa
Flash point	-4 °F ( -20 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	6.7 %(V)
Upper explosion limit	11.3 %(V)
Vapor pressure	510 hPa at 68 °F ( 20 °C)  1,480 hPa at 122 °F ( 50 °C)
Relative vapor density	No information available.
Relative density	1.46 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Water solubility	9 g/l at 68 °F ( 20 °C)
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.

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Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Ignition temperature	950 °F ( 510 °C)

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### 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

Violent reactions possible with:

Alkali metals, Alkaline earth metals, sodium amide, Oxidizing agents, Metals, Bases

#### Conditions to avoid

Warming.

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

#### Incompatible materials

no information available

#### Hazardous decomposition products

in the event of fire: See section 5.

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### SECTION 11. Toxicological information

#### Information on toxicological effects

##### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

##### *Target Organs*

Eyes

Skin

Respiratory system

Liver

Kidneys

cardiovascular system

Central nervous system

##### *Acute oral toxicity*

LD50 rat: 1,350 mg/kg (RTECS)

absorption

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## *Acute inhalation toxicity*

absorption

Symptoms: mucosal irritations, Cough, Shortness of breath, After a latency period:, Lung edema

Acute toxicity estimate: 11.1 mg/l

Expert judgment

## *Acute dermal toxicity*

absorption

## *Skin irritation*

Possible damages: slight irritation

## *Eye irritation*

Possible damages: slight irritation

## *CMR effects*

Carcinogenicity:

Suspected of causing cancer.

## *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 carcinogen by OSHA.

NTP

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

Confirmed animal carcinogen with unknown relevance to humans.

bromoethane

74-96-4

## **Further information**

After absorption:

Nausea, Vomiting, Cardiac irregularities, drowsiness, Dizziness, euphoria, agitation, spasms, narcosis

Damage to:

Liver, Kidney

Further data:

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Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12. Ecological information

### Ecotoxicity

No information available.

### Persistence and degradability

No information available.

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

### *Additional ecological information*

Discharge into the environment must be avoided.

## 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.

## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN 1891
Proper shipping name	ETHYL BROMIDE
Class	6.1
Packing group	II
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 1891
Proper shipping name	ETHYL BROMIDE
Class	6.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

### Sea transport (IMDG)

UN number	UN 1891
Proper shipping name	ETHYL BROMIDE
Class	6.1
Packing group	II
Environmentally hazardous	--



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Special precautions for user yes  
EmS F-A S-A

## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Flammable Liquid  
Harmful if swallowed.  
Carcinogen  
Target organ effects

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  
Acute Health Hazard  
Chronic Health Hazard

#### SARA 313

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 302

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

#### 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*  
bromoethane

### Pennsylvania Right To Know

*Ingredients*  
bromoethane

### New Jersey Right To Know

*Ingredients*  
bromoethane

### California Prop 65 Components

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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.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.

### 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).

Revision Date 08/22/2013

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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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