

## Material Safety Data Sheet

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Version 1.1

According to 91/155/EEC

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1 - Product and Company Information

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Product Name	BROMOMETHANE VIAL WITH 20 G
Product Number	65950
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

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2 - Composition/Information on Ingredients

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Product Name	CAS #	EC no	Annex I Index Number
BROMOMETHANE	74-83-9	200-813-2	602-002-00-2
Formula	CH <sub>3</sub> Br		
Molecular Weight	94.94 AMU		

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3 - Hazards Identification

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SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT  
Toxic by inhalation and if swallowed. Irritating to eyes,  
respiratory system and skin. Harmful: danger of serious damage to  
health by prolonged exposure through inhalation. Very toxic to  
aquatic organisms. Dangerous for the ozone layer. Possible risk of  
irreversible effects.  
Muta. Cat.3

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4 - First Aid Measures

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## AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give  
artificial respiration. If breathing is difficult, give oxygen.

## AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious  
amounts of water.

## AFTER EYE CONTACT

Contamination of the eyes should be treated by immediate and  
prolonged irrigation with copious amounts of water. Assure  
adequate flushing of the eyes by separating the eyelids with  
fingers.

## AFTER INGESTION

If swallowed, wash out mouth with water provided person is  
conscious. Call a physician.

## GENERAL INFORMATION

Symptoms may be delayed. Keep under medical observation.

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## 5 - Fire Fighting Measures

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### EXTINGUISHING MEDIA

Suitable: Use water spray or fog nozzle to keep cylinder cool.  
Move cylinder away from fire if there is no risk.

### SPECIAL RISKS

Specific Hazard(s): Extremely flammable. Vapor may travel considerable distance to source of ignition and flash back.

Emits toxic fumes under fire conditions.

Explosion Hazards: May form explosive mixtures with air Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### SPECIFIC METHOD(S) OF FIRE FIGHTING

Do not extinguish burning gas if flow cannot be shut off immediately. Use water spray or fog nozzle to keep cylinder cool. Move cylinder away from fire if there is no risk.

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## 6 - Accidental Release Measures

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### PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area and keep personnel upwind. Shut off all sources of ignition. Shut off leak if there is no risk.

### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

### METHODS FOR CLEANING UP

Ventilate area and wash spill site after material pickup is complete.

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## 7 - Handling and Storage

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### HANDLING

Directions for Safe Handling: Do not breathe gas. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

### STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Use with equipment rated for cylinder pressure, and of compatible materials of construction. Close valve when not in use and when empty. Make sure cylinder is properly secured when in use or stored Cylinder temperature should not exceed 125°F (52°C).

Unsuitable: Store away from heat and direct sunlight

SPECIAL REQUIREMENTS: Contents under pressure. Refrigerate before opening.

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## 8 - Exposure Controls / Personal Protection

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### ENGINEERING CONTROLS

Warning: suck-back into cylinder may cause rupture. Use back-flow-preventive device in piping.

#### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

#### EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	20 mg/m3 5 ppm

Remarks: H

#### EXPOSURE LIMITS - NORWAY

Source	Type	Value
OEL	OEL	20 mg/m3 5 ppm

Remarks: HK

#### EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level)	19 mg/m3 5 ppm

Remarks: H

#### EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	20 mg/m3 5 ppm

Remarks: H

#### EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	20 mg/m3 5 ppm
OEL	STEL	59 mg/m3 15 ppm

Remarks: Skin

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator in nonventilated areas and/or for exposure above the TLV or PEL.  
Hand Protection: Compatible chemical-resistant gloves.  
Eye Protection: Chemical safety goggles.

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### 9 - Physical and Chemical Properties

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Appearance	Color: Colorless Form: Clear liquid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	4 °C	760 mmHg
MP/MP Range	-94 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	536 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 10 % Upper: 16 %	
Vapor Pressure	1420 mmHg	20 °C
SG/Density	1.73 g/cm3	

Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	3.3 g/l	20 °C
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Soluble.	

## 10 - Stability and Reactivity

### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Plastics, Rubber, Aluminum, Strong bases, Magnesium, Zinc, Alkali metals.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen bromide gas.

## 11 - Toxicological Information

### ACUTE TOXICITY

LCLO

Inhalation

Man

60,000 ppm

2H

Remarks: Behavioral:Convulsions or effect on seizure threshold.

Lungs, Thorax, or Respiration:Respiratory stimulation.

Gastrointestinal:Nausea or vomiting.

LCLO

Inhalation

Child

1,000 mg/m3

2H

Remarks: Blood:Change in clotting factors.

LD50

Oral

Rat

214 mg/kg

LC50

Inhalation

Rat

302 ppm

8H

Remarks: Behavioral:Change in motor activity (specific assay).

Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

LD50

Subcutaneous

Rat  
135 MG/KG

LC50  
Inhalation  
Mouse  
1,540 mg/m3  
2H

LC50  
Inhalation  
Rabbit  
28,900 mg/m3  
30M

#### SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Nausea, dizziness, and headache. Anorexia. Vomiting. Weakness. Blurred vision. Confusion. Tremors. Convulsions. Pulmonary edema. Effects may be delayed. Cyanosis. Coma. and possibly death.

#### ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.  
Skin Absorption: May be harmful if absorbed through the skin.  
Eye Contact: Causes eye irritation.  
Inhalation: Can cause rapid suffocation. Toxic if inhaled.  
Material is irritating to mucous membranes and upper respiratory tract.  
Ingestion: Toxic if swallowed.

#### TARGET ORGAN INFORMATION

Central nervous system. Kidneys.

#### CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Rat  
Route of Application: Oral  
Exposure Time: 13W  
Result: Tumorigenic: Carcinogenic by RTECS criteria.  
Gastrointestinal: Peritonitis. Gastrointestinal: Tumors.

Rat  
Route of Application: Inhalation  
Exposure Time: 6H/2.5Y  
Result: Tumorigenic: Carcinogenic by RTECS criteria. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Olfaction: Tumors.

#### IARC CARCINOGEN LIST

Rating: Group 3

#### CHRONIC EXPOSURE - MUTAGEN

Human  
95 MG/L  
Cell Type: lymphocyte  
Cytogenetic analysis

Human

43000 PPM  
Cell Type: lymphocyte  
Sister chromatid exchange

Human  
5 MG/L  
Cell Type: lymphocyte  
Sister chromatid exchange

Rat  
338 PPM  
Inhalation  
6H/14D  
Micronucleus test

Mouse  
100 PPM  
Inhalation  
6H/14D  
Micronucleus test

Mouse  
200 PPM  
Inhalation  
6H/14D  
Sister chromatid exchange

Mouse  
300 UG/L  
Cell Type: lymphocyte  
Mutation in mammalian somatic cells.

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 300 MG/KG  
Route of Application: Oral  
Exposure Time: (6-15D PREG)  
Result: Maternal Effects: Other effects.

Species: Rabbit  
Dose: 130 MG/KG  
Route of Application: Oral  
Exposure Time: (6-18D PREG)  
Result: Maternal Effects: Other effects.

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#### 12 - Ecological Information

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No data available.

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#### 13 - Disposal Considerations

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#### SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

#### CONTAMINATED CONTAINER DISPOSAL

Caution: no-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue. Follow proper disposal techniques.

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#### 14 - Transport Information

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RID/ADR  
UN#: 1062  
Class: 2  
Proper Shipping Name: Methyl bromide

IMDG  
UN#: 1062  
Class: 2.3  
Subrisk: 2.1  
Proper Shipping Name: Methyl bromide  
Marine Pollutant: No  
Severe Marine Pollutant: No

IATA  
UN#: 1062  
Class: 2.3  
Proper Shipping Name: Methyl bromide  
Inhalation Packing Group I: No

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## 15 - Regulatory Information

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### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 602-002-00-2

INDICATION OF DANGER: T N

Toxic. Dangerous for the environment.

R-PHRASES: 23/25 36/37/38 48/20 50 59 68

Toxic by inhalation and if swallowed. Irritating to eyes, respiratory system and skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Very toxic to aquatic organisms. Dangerous for the ozone layer. Possible risk of irreversible effects.

S-PHRASES: 15 27 38 45 59 61 36/39

Keep away from heat. Take off immediately all contaminated clothing. In case of insufficient ventilation, wear suitable respiratory equipment. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Refer to manufacturer/supplier for information on recovery/recycling. Avoid release to the environment. Refer to special instructions/safety data sheets. Wear suitable protective clothing and eye/face protection.

### COUNTRY SPECIFIC INFORMATION

Germany  
WGK: 3

SWITZERLAND  
SWISS POISON CLASS: 1\*

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## 16 - Other Information

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### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.  
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