

Safety Data Sheet according to Regulation (EC)**No. 1907/2006 (REACH)**

Printed 20.03.2018

Revision 20.03.2018 (GB) Version 12.0

Methyl bromide (Bromomethane)

2100, 70210

**GERLING
HOLZ+CO****! SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Name of product	Methyl bromide (Bromomethane)
	Art-Nr(n): 2100, 70210
Name of substance	bromomethane
Index No	602-002-00-2
EC No	200-813-2
REACH registration number	01-2119919335-38
CAS No	74-83-9

1.2. Relevant identified uses of the substance or mixture and uses advised against**Identified uses****! Remark**

Restricted to professional users.

Recommended intended purpose(s)

Basic substance.

Intermediate.

1.3. Details of the supplier of the safety data sheet

Manufacturer/distributor	GHC Gerling, Holz & Co. Handels GmbH Ruhrstraße 113, D-22761 Hamburg Phone +49 40 853 123-0, Fax +49 40 853 123-66 E-Mail hamburg@ghc.de Internet www.ghc.com
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Advice	GHC Gerling, Holz & Co. Handels GmbH Phone +49 40 853 123-0 Fax +49 40 853 123-66 E-mail (competent person): msds@ghc.de
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1.4. Emergency telephone number

Emergency advice	Giftinformationszentrum (Poison Control Centre) Mainz Phone +49 6131 19240
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SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]**

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
Liquef. Gas	H280	
Acute Tox. 3	H301	
Acute Tox. 3	H331	
Skin Irrit. 2	H315	
Eye Irrit. 2	H319	
Muta. 2	H341	
STOT SE 3	H335	
STOT RE 2	H373	

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Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
Aquatic Acute 1	H400	
Ozone 1	H420	

Hazard statements for physical hazards

H280 Contains gas under pressure; may explode if heated.

Hazard statements for health hazards

H301 + H331 Toxic if swallowed or if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H341 Suspected of causing genetic defects.

H373 May cause damage to organs through prolonged or repeated exposure by inhalation.

Hazard statements for environmental hazards

H400 Very toxic to aquatic life.

H420 Harms public health and the environment by destroying ozone in the upper atmosphere.

Additional hints

Listed substance (Regulation (EC) No 1272/2008, Annex VI, part 3).

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]



GHS06



GHS08



GHS09

Signal word

Danger

Hazard statements for physical hazards

H280 Contains gas under pressure; may explode if heated.

Hazard statements for health hazards

H301 + H331 Toxic if swallowed or if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H341 Suspected of causing genetic defects.

H373 May cause damage to organs through prolonged or repeated exposure by inhalation.

Hazard statements for environmental hazards

H400 Very toxic to aquatic life.

H420 Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary Statements

Prevention

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe gas/vapours.

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

! Response

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

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Storage

P403 Store in a well-ventilated place.

P405 Store locked up.

Hazardous ingredients for labeling

bromomethane

! Special rules for supplemental label elements for certain mixtures

The substance may only be used as feedstock.

2.3. Other hazards

Adverse physicochemical effects

Even though the substance has a flammability hazard, it only exhibits such hazard under extreme fire conditions in confined areas.

Adverse human health effects and symptoms

Contact with liquid may cause cold burns/frostbite.

Information pertaining to special dangers for human and environment

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Results of PBT and vPvB assessment

not determined

! SECTION 3: Composition/ information on ingredients

3.1. Substances

! Description

Content: > 99 %

CAS No 74-83-9

bromomethane

EC No 200-813-2

Index No 602-002-00-2

REACH registration number 01-2119919335-38

3.2. Mixtures

not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.

Adhere to personal protective measures when giving first aid.

Seek medical advice immediately.

In case of inhalation

Remove the casualty into fresh air and keep him immobile.

In the event of pulmonary irritation treat initially with corticoid spray, e.g. Ventolair- or Pulmicort- metered-dose aerosol (Ventolair and Pulmicort are registered trademarks).

Seek medical treatment immediately.

In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

In case of skin contact

In case of contact with skin wash off with soap and water.

In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw it with lukewarm water. Apply a sterile dressing. Obtain medical assistance.

Seek medical treatment immediately.

In case of eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call for a doctor immediately.

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In case of ingestion

Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Physician's information / possible symptoms

Redness / blebs on the skin.

The following symptoms may occur in case of strong exposition:

Eye defects

vomiting

Headache

Nausea

Trembling, clouded awareness, convulsions with delay of several hours

Dizziness

Physician's information / possible dangers

Risk of pulmonary oedema

In case of massive exposure: Risk of damage to the liver, kidneys and central nervous system.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment (Advice to doctor)

Treat symptoms.

Continue to monitor for pneumonia and pulmonary oedema.

Monitor circulation.

Keep under medical supervision for at least 24 hours.

Symptoms may not occur until several hours.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam

Carbon dioxide

Water spray jet

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire formation of dangerous gases possible.

In the event of fire the following can be released:

Carbon monoxide (CO)

Carbonyl bromide

Hydrogen bromide (HBr)

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated).

Wear full protective clothing.

Additional information

Cool endangered containers with water spray jet.

Exposure to fire may cause containers to rupture / explode.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

Collect contaminated firefighting water separately, must not be discharged into the drains.

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! SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

! For non-emergency personnel

See section 8.

Evacuate area.

Keep people away and stay on the upwind side.

Keep away sources of ignition.

! For emergency responders

Remove persons to safety.

Personal protection by wearing close-fitting protective clothing and breathing apparatus.

Eliminate all ignition sources if safe to do so.

6.2. Environmental precautions

Do not discharge into the drains or bodies of water..

Collect contaminated water / firefighting water separately.

If possible, stop flow of product.

Eliminate ignition sources.

Prevent spread over a wide area (e.g. by containment or oil barriers).

If necessary, secure leaky pressure receptacles in a salvage packaging.

Suppress gases/vapours/mists with water spray jet

Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

Ensure adequate air ventilation.

Clean contaminated objects and floor thoroughly under consideration of environment regulations.

Dispose of contaminated material in accordance with regulations.

Additional Information

No water on the leaks.

6.4. Reference to other sections

Safe handling: see section 7

Disposal: see section 13

Personal protection equipment: see section 8

! SECTION 7: Handling and storage

7.1. Precautions for safe handling

! Advice on safe handling

Use only in thoroughly ventilated areas.

Transfer and handle only in enclosed systems.

Containers' temperature may not be increased above 50 °C.

Do not heat with open flames.

The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50 °C.

Prevent cylinders from falling over.

Avoid release to the environment.

Ensure valve outlet cap nut or plug is correctly fitted.

Ensure valve protection device is correctly fitted.

Open valve slowly to avoid pressure shock.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.

Do not allow backfeed into the container.

Suck back of water into the container must be prevented.

No water to valves, flanges and other fittings.

Purging of pipes and valves with inert gases - to avoid: water, solvents.

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General protective measures

Do not inhale gases/vapours/aerosols.

Hygiene measures

At work do not eat, drink, smoke or take drugs.

Wash hands before breaks and after work.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking

Even though the substance has a flammability hazard, it only exhibits such hazard under extreme fire conditions in confined areas.

Pay attention to general rules of internal fire prevention.

7.2. Conditions for safe storage, including any incompatibilities

! Requirements for storage rooms and vessels

Ventilate store-rooms thoroughly.

Use transportable pressure equipment.

Suitable materials: Normalised carbon steel, tempered alloy steel, austenitic stainless steels.

Valve: Suitable materials: Brass, copper alloys, carbon steels, austenitic stainless steels.

Other material details see ISO 11114.

All regulations and local requirements for the storage of containers have to be respected.

Unsuitable materials: Aluminium alloys.

! Advice on storage compatibility

Do not store with spontaneously flammable materials.

Do not store together with combustible liquids or combustible solids.

Do not store together with animal feedstuffs.

Do not store together with explosives.

Do not store together with infectious substances.

Do not store together with radioactive material.

Do not store together with toxic liquids or toxic solids.

Do not store together with food.

Do not store together with oxidizing liquids or oxidizing solids.

Further information on storage conditions

Ensure valve protection device is correctly fitted.

Store closed container at cool and aired place.

Store only in original container at temperature of 50°C maximum (=122°F).

Prevent cylinders from falling over.

Protect from heat/overheating.

7.3. Specific end use(s)

Recommendation(s) for intended use

Use as an intermediate under strictly controlled conditions.

Use in accordance with regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

! SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
74-83-9	Bromomethane	WEL, 8 hours	20	5	EH40, UK
		Short-term	59	15	

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Ingredients with occupational exposure limits to be monitored (continued)

CAS No	Name	Code	[mg/m ³]	[ppm]	Remark
74-83-9	Methyl bromide	PEL, 8 hours Short-term	80	20	OSHA, Table Z-1, USA

Additional advice

A risk of fetal damage does not need to be feared if the occupational exposure limit is adhered to.

8.2. Exposure controls**Respiratory protection**

Breathing apparatus in the event of high concentrations.

Keep self contained breathing apparatus readily available for emergency use.

Short term: filter apparatus, filter AX

! Hand protection

Leather gloves

Protective gloves complying with EN 374.

! Eye protection

Do not wear contact lenses.

Protective goggles according to EN 166, in case of increased risk add protective face shield.

Other protection measures

Safety shoes with steel toe.

Body covering work clothing, or chemical resistant suit at increased risk.

Appropriate engineering controls

Transfer and handle only in enclosed systems.

! SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties****Appearance**

Gaseous / liquefied under pressure.

Colour

colourless, clear

Odour

sweetish, similar to chloroform

Odour threshold80 - 4000 mg/m³**Important health, safety and environmental information**

	Value	Temperature	at	Method	Remark
pH value	not applicable				
Acid number	not applicable				
boiling point	4 °C		1013 hPa		
melting point	-93,7 °C				
Flash point	194 °C				
Vapourisation rate	not determined				

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	Value	Temperature	at	Method	Remark
Flammable (solid)	not applicable				
Flammability (gas)					Even though the substance has a flammability hazard, it only exhibits such hazard under extreme fire conditions in confined areas.
Ignition temperature	535 °C			DIN 51794	
Self ignition temperature	537 °C				
Lower explosion limit	8,6 Vol-%				
Upper explosion limit	20 Vol-%				
Vapour pressure	1890 hPa	20 °C			
Relative density	1,72 g/cm ³	4 °C			
Bulk density	not applicable				
Vapour density	3,974	0 °C	1013 hPa		Heavier than air.
Solubility in water	17,5 g/l	20 °C			hydrolyses
Solubility/other	not determined				
Partition coefficient n-octanol/water (log P O/W)	1,19				
Decomposition temperature	ca. 400 °C				
Viscosity dynamic	not applicable				
Oxidising properties	no				
Explosive properties	no				
9.2. Other information					
Vapours are heavier than air.					

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! SECTION 10: Stability and reactivity**10.1. Reactivity**

See section "Possibility of hazardous reactions".

10.2. Chemical stability

Stable under recommended conditions of use and storage (see section 7).

10.3. Possibility of hazardous reactions

May react violently with oxidants.

Danger of fire and explosion with strong oxidants, alkali metals and earth alkali metals.

May react with aluminium.

Reactions with metals in powder form.

10.4. Conditions to avoid

Heat sources / heat - risk of bursting.

Humidity.

Evolution of ignitable vapour-air mixtures possible if stored in large containers and above room temperature.

10.5. Incompatible materials**! Substances to avoid**

Metals in powder form.

Zinc.

Oxidants.

Alkali metals.

Earth alkali metals.

Aluminium / Aluminium alloys.

10.6. Hazardous decomposition products

Carbon monoxide

Hydrogen bromide

Carbonyl bromide

Thermal decomposition

Remark No decomposition below 400°C.

! SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity/Irritation/Sensitization**

	Value/Validation	Species	Method	Remark
LD50 acute oral	104 mg/kg	rat (male / female)	EPA OPP 81-1	An oral intake is very unlikely due to the low boiling point.
LD50 acute dermal	135 mg/kg	rat (male / female)		
LC50 acute inhalation	302 ppm (8 h)	Rat (male)		
Skin irritation	irritant			experiences
Eye irritation	strong irritant			experiences

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	Value/Validation	Species	Method	Remark
Skin sensitization		not determined		
Sensitization respiratory system		not determined		
Subacute Toxicity - Carcinogenicity				
	Value	Species	Method	Validation
Subchronic Toxicity	NOEL 25 ppm (28 d) Inhalation 7 h/d, 5 d/w	Dog	OECD 412.	Disorders of the central nervous system: mental confusion, lethargy, incoordination, amyosthenia (muscular weakness).
Mutagenicity	250 ppm (14 d) Inhalation. 6 h/d, 5 d/w	Rat		Information on genotoxicity in vivo and in vitro available.
Reproduction-Toxicity	NOEL 30 ppm Inhalation. 6 h/d, 5 d/w	Rat (male / female)	EU Method B.35 (Two-Generation Reproduction Toxicity Test)	No indications of toxic effects were observed in reproduction studies in animals.
Carcinogenicity		Rat		No indications of carcinogenic effects are available from long-term trials.

Specific target organ toxicity (single exposure)

May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

May cause damage to organs through prolonged or repeated exposure by inhalation.

Aspiration hazard

not applicable

Toxicity test (Additional information)

Experimental indication of genotoxicity in vitro (Ames-test positive).

Experiences made from practice

Risk of strong health injuries in case of long-term exposition.

Repetitive skin contact may cause dermatitis.

Irritates respiratory tract.

Renal damage is possible.

Irritates mucous membranes.

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! SECTION 12: Ecological information**12.1. Toxicity****Ecotoxicological effects**

	Value	Species	Method	Validation
Fish	LC50 3,9 mg/l (96 h)	rainbow trout	EPA OPP 72-1	
Daphnia	EC50 2,6 mg/l (48 h)	Daphnia magna	EPA OPP 72-2	
Algae	EC50 3,2 mg/l (48 h)	Scenedesmus quadricauda	EU Method C.3	

12.2. Persistence and degradability

	Elimination rate	Method of analysis	Method	Validation
Physico-chemical degradability	The product is not stable and hydrolyses.			

12.3. Bioaccumulative potential

Does not bioaccumulate.

Because of the n-octanol/water distribution coefficient (log K o/w) accumulation in organisms is not expected.

12.4. Mobility in soil

High mobility

Adsorption in the soil is not likely.

12.5. Results of PBT and vPvB assessment

not determined

12.6. Other adverse effects

ODP: 0,6

General regulation

Do not allow uncontrolled leakage of product into the environment.

Product is not allowed to be discharged into the ground water or aquatic environment.

Product is not allowed to be discharged into aquatic environment, drains or sewage treatment plants.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Waste code No.**

16 05 04*

Name of waste

gases in pressure containers (including halons) containing hazardous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 2008/98/EC on hazardous waste.

Recommendations for the product

Dispose of as hazardous waste.

Recommendations for packaging

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

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**! SECTION 14: Transport information**

	ADR/RID	IMDG	IATA-DGR
14.1. UN number	1062	1062	1062
14.2. UN proper shipping name	METHYL BROMIDE	METHYL BROMIDE	Methyl bromide
14.3. Transport hazard class(es)	2.3	2.3	2.3
14.4. Packing group	-	-	-
14.5. Environmental hazards	Yes	Yes	Yes

14.6. Special precautions for user

The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

No transport as bulk according IBC - Code.

Land and inland navigation transport ADR/RID

Hazard label(s) 2.3

tunnel restriction code C/D

Classification code 2T

Marine transport IMDG

MARINE POLLUTANT

Ems: F-C, S-U

Air transport ICAO/IATA-DGR

FORBIDDEN

! SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Application restrictions**

Use in accordance with regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

! Other regulations (EU)

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII No 28 - 30.

Regulation (EU) No. 1005/2009 concerning materials, which cause damage to the ozone layer.

Regulation (EU) No 649/2012 concerning the export and import of dangerous chemicals.

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

VOC standard

VOC content >=99 % 20 °C 1890 hPa

15.2. Chemical Safety Assessment

The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

An exposure scenario is not required.

For this substance a chemical safety assessment has not been carried out.

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! SECTION 16: Other information

Recommended uses and restrictions

National and local regulations concerning chemicals shall be observed.

Further information

All declarations of safety-data-sheet refer to pure substance.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 11.4

! Sources of key data used

For the preparation of this safety data sheet, information from our suppliers as well as data from the "database of registered substances" of the European Chemicals Agency (ECHA) were used.