

OTTO CHEMIE PVT LTD

An ISO 9001 : 2015 & GMP Certified Company
101, Aarkay Ruby Industrial Estate (1B), Opp Shree Narayan Industrial Estate,
Chinchpada, Vasai East, Waliv, Maharashtra 401208. Tel : + 91 98200 41841
Email : info@ottokemi.com Web : www.ottokemi.com

MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Product identifiers

Product Name : Methyl bromide 25% in acetonitrile
Product Code: M 2014
CAS-No.: 74-83-9

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use : Industrial. For professional use only.

1.3. Details of the supplier of the safety data sheet

Company identification

OTTO CHEMIE PVT LTD

101, Aarkay Ruby Industrial Estate(1B), Opp Shree Narayan Industrial Estate,
Chinchpada, Vasai East, Waliv, Maharashtra 401208.

Email info@ottokemi.com

1.4. Emergency telephone number

Phone no. : + 91 22 2207 0099 (9:00am - 6:00 pm)

SECTION 2.Hazard identification

2.1 Classification of the substance or mixture

Gases under pressure: Compressed gas

Acute toxicity - Oral, Category 3

Skin irritation, Category 2

Eye irritation, Category 2

Acute toxicity - Inhalation, Category 3

Specific target organ toxicity \u2013 single exposure, Category 3

Germ cell mutagenicity, Category 2

Specific target organ toxicity \u2013 repeated exposure, Category 2

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the ozone layer, Category 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Hazard statement(s)

Danger

H301 Toxic if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

H331 Toxic if inhaled

H335 May cause respiratory irritation

H341 Suspected of causing genetic defects

H373 May cause damage to organs through prolonged or repeated exposure

H400 Very toxic to aquatic life

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

Precautionary statement(s)

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Prevention	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P273 Avoid release to the environment.
Response	P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/02026 P321 Specific treatment (see ... on this label). P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P332+P313 If skin irritation occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P311 Call a POISON CENTER/doctor/02026 P312 Call a POISON CENTER/doctor/02026 if you feel unwell. P308+P313 IF exposed or concerned: Get medical advice/ attention. P314 Get medical advice/attention if you feel unwell. P391 Collect spillage.
Storage	P410+P403 Protect from sunlight. Store in a well-ventilated place. P405 Store locked up.
Disposal	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P501 Dispose of contents/container to ... P502 Refer to manufacturer or supplier for information on recovery or recycling
2.3 Other hazards which do not result in classification	none

SECTION 3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Methyl bromide	Methyl bromide	74-83-9	none	100%

SECTION 4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.

In case of skin contact

Rinse skin with plenty of water or shower. ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer immediately for medical attention.

In case of eye contact

Rinse with plenty of water (remove contact lenses if easily possible). Refer immediately for medical attention.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

Methyl bromide is a dangerous cumulative poison with delayed symptoms of central nervous system intoxication that may appear as long as several months after exposure. High concentrations can produce fatal pulmonary edema. Chronic exposure can cause central nervous system depression and kidney injury. It may cause severe and permanent brain damage. Severe neurological signs may appear when there is a sudden exposure to high concentrations following continuous slight exposure. Methyl bromide has practically no odor or irritating effects and therefore no warning, even at hazardous concentrations. (EPA, 1998)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

In a /methyl bromide/ poisoned man suffering from action myoclonus, the condition was controlled by diazepam (60 mg/day).

However, because of severe somnolence, the treatment was changed to clonazepam at This treatment was effective; the somnolence disappeared, & the myoclonus decreased conspicuously. Clonazepam produced mild improvement in another case

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with action myoclonus. Although /dimercaprol/ has been used for treating methyl bromide poisoning, there is no evidence that it was beneficial. Treatment of a poisoning case with acetylcysteine was concluded to be not harmful & possibly beneficial.

SECTION 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Extinguish fire using agent suitable for surrounding fire. Use flooding quantities of water as fog. Use water spray to keep fire-exposed containers cool.

5.2 Specific hazards arising from the chemical

When heated to decomposition, it emits toxic fumes of bromides. Hazardous polymerization may not occur. (EPA, 1998)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid.

6.3 Methods and materials for containment and cleaning up

1. REMOVE ALL IGNITION SOURCES. 2. VENTILATE AREA OF SPILL OR LEAK. 3. STOP FLOW OF GAS. IF SOURCE OF LEAK IS A CYLINDER & LEAK CANNOT BE STOPPED IN PLACE, REMOVE THE LEAKING CYLINDER TO A SAFE PLACE IN THE OPEN AIR, REPAIR THE LEAK OR ALLOW THE CYLINDER TO EMPTY. 4. IF IN THE LIQ FORM, ALLOW TO VAPORIZE.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof if in building. Separated from strong oxidants, aluminium and cylinders containing oxygen. Cool. Ventilation along the floor. Fireproof if in building. Separated from strong oxidants, aluminium and cylinders containing oxygen. Cool. Ventilation along the floor.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

NIOSH considers methyl bromide to be a potential occupational carcinogen.

NIOSH recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration.

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

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SECTION 9. Physical and chemical properties

Physical state	colourless gas with a chloroform-like odour
Colour	Colorless, transparent, easily liquified gas or volatile liquid
Odour	Usually odorless; sweetish, chloroform-like odor at high concentrations
Melting point/ freezing point	-93.7\00baC
Boiling point or initial boiling point and boiling range	3.56\00baC
Flammability	Flammable Gas, but only in presence of a high energy ignition source. Combustible under specific conditions. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	Lower flammable limit: 10% by volume; Upper flammable limit: 16% by volume
Flash point	-34\00baC
Auto-ignition temperature	537.22\00b0C (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.397 cP at 0\00b0C
Solubility	In water: 1.522 g/100 mL
Partition coefficient n-octanol/water (log value)	log Kow = 1.19
Vapour pressure	1420 mm Hg (20 \00b0C)
Density and/or relative density	1.732
Relative vapour density	3.3 (20 \00b0C, vs air)
Particle characteristics	no data available

SECTION 10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Heat /contributes to instability/.

10.3 Possibility of hazardous reactions

Non-flammable in air, but burns in oxygen. The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. METHYL BROMIDE is incompatible with metals, dimethyl sulfoxide, ethylene oxide. [Lewis]. Can give flammable products if mixed with potassium hydroxide, sodium hydroxide and other strong bases. Methyl bromide in a steel tank reacted with an aluminum tube (part of the level gauge) producing methyl aluminum bromide. When the latter was subsequently exposed to air, enough heat was produced to ignite the methyl bromide-compressed air mixture above the liquid layer. The ensuing explosion shattered the tank (also incompatible with zinc, magnesium, and alloys)[Chem. Eng. Pro. 58(8). 1962]. A reaction between methyl bromide and dimethyl sulfoxide resulted in an explosion that shattered the apparatus [NFPA 491M. 1991].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Risk of fire and explosion on contact with aluminium, zinc, magnesium or oxygen.

10.6 Hazardous decomposition products

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen bromide, bromine and carbon oxybromide.

Reacts with strong oxidants. Attacks many metals in the presence of water. Attacks aluminium, zinc and magnesium. This produces pyrophoric compounds. This generates fire and explosion hazard.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Toxicity to Animals:

Oral LD50 Rat: 1500 mg/kg; Dermal LD50 Rabbit: 2000mg/kg

Inhalation LC50 Rat: > 50mg/L.

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA, None. by NIOSH.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of inhalation (lung irritant).

Special Remarks on Toxicity

to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

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Special Remarks on other Toxic Effects on Humans: Not available.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (bluegill); Conditions: static bioassay, freshwater, 23°C, mild aeration applied after 24 hr; Concentration: 11 ppm for 96 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea); Conditions: freshwater, static, 19°C, pH 8.2, hardness 209.43 mg/L CaCO₃, dissolved oxygen >6.5 mg/L; Concentration: 1700 ug/L for 48 hr; Effect: behavioral changes, general >99.9% purity

Toxicity to algae: EC50; Species: Chlorella pyrenoidosa (Green Algae) exponential growth phase, 10000 cells/mL; Conditions: freshwater, static, 24°C, pH 7.7, hardness 54.06 mg/L CaCO₃; Concentration: 2100-6700 ug/L for 24 hr; Effect: growth, general >99.9% purity

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

ANAEROBIC: Methyl bromide was anaerobically degraded in salt marsh sediments after chemical reaction with abundant free sulfide. The product of this nucleophilic substitution reaction was methanethiol, which underwent further chemical and bacterial reactions to form dimethyl sulfide(1).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for methyl bromide(SRC), using a log Kow of 1.19(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Reported Koc values for methyl bromide range from 9 to 22(1). According to a classification scheme(2), these Koc values suggest that methyl bromide is expected to have very high mobility in soil(SRC). The adsorption coefficient, Kd, for methyl bromide was below measurable for Greenfield sandy loam, Linne clay loam, and Carsetas loamy sand soils; Kd was equal to 0.2 for potting mix soil(3).

12.5 Other adverse effects

no data available

SECTION 13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14. Transport information

14.1 UN Number

ADR/RID: UN1062

IMDG: UN1062

IATA: UN1062

14.2 UN Proper Shipping Name

ADR/RID: METHYL BROMIDE with not more than 2% chloropicrin

IMDG: METHYL BROMIDE with not more than 2% chloropicrin

IATA: METHYL BROMIDE with not more than 2% chloropicrin

14.3 Transport hazard class(es)

ADR/RID: 2.3

IMDG: 2.3

IATA: 2.3

14.4 Packing group, if applicable

ADR/RID: unknown

IMDG: unknown

IATA: unknown

14.5 Environmental hazards

ADR/RID: yes

IMDG: yes

IATA: yes

14.6 Special precautions for user

no data available

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

no data available

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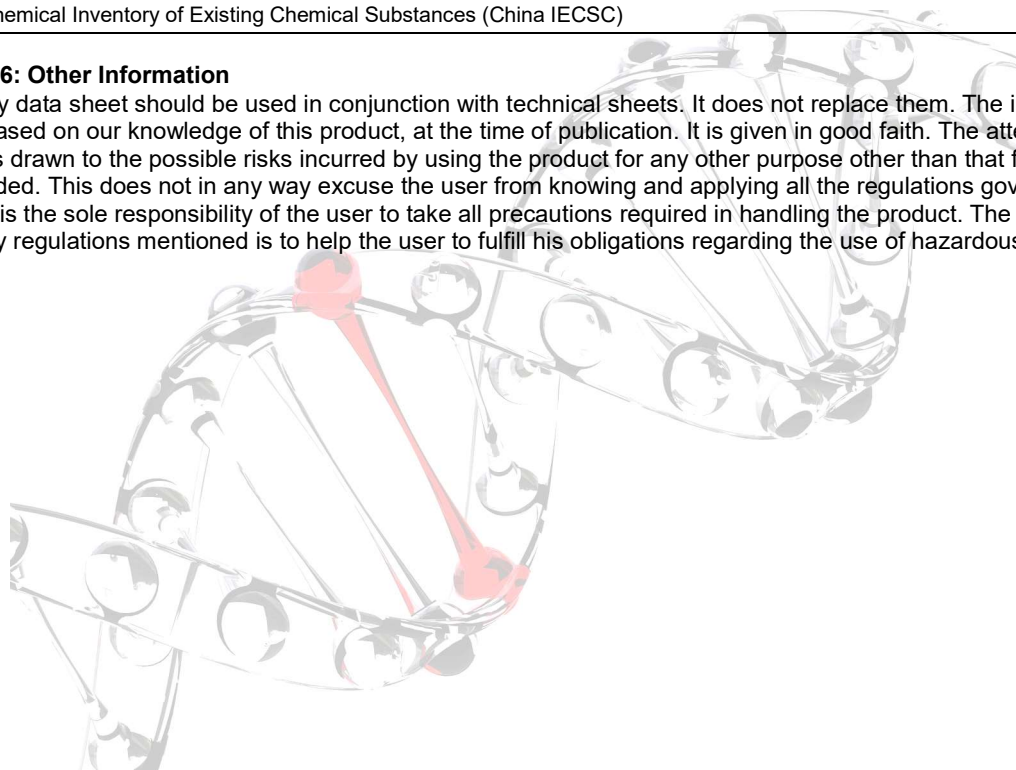
SECTION 15.Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
bromomethane	bromomethane	74-83-9	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.



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