Methyl Bromide Industrial



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SECTION 1. IDENTIFICATION

Product name: Methyl Bromide Industrial

Product Use Description: Chemical intermediate

Synonyms: methyl bromide

Company: LANXESS Solutions US Inc.

2 Armstrong Road Shelton, CT

06484

United States of America (USA) Telephone: (US) +1 866-430-2775

Emergency telephone num-

ber:

CHEMTREC

(24 hours) 800-424-9300

US: 800-292-5898 (Technical inquiries)

For additional emergency telephone numbers see section 16 of the Safety

Data Sheet.

Prepared by <u>Product Safety Department</u>

(US) +1 866-430-2775

MSDSRequest@lanxess.com

Recommended use of the chemical and restrictions on use

Recommended use : Chemical intermediate

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable gases : Category 1

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 3

Skin irritation : Category 2

Eye irritation : Category 2A

Germ cell mutagenicity : Category 2

Specific target organ toxicity

- single exposure

Category 3 (Respiratory system)

Specific target organ toxicity

- repeated exposure

Category 2

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Short-term (acute) aquatic

hazard

Category 1

GHS label elements

Hazard pictograms











Signal word : Danger

Hazard statements : H220 Extremely flammable gas.

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 re-

peated exposure.

H400 Very toxic to aquatic life.

Precautionary statements

Prevention:

P201 Obtain special instructions before use.

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

P210 Keep away from heat/sparks/open flames/hot surfaces.

No smoking.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear eye protection/ face protection.

P281 Use personal protective equipment as required.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P304 + P340 + P311 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention

P362 Take off contaminated clothing and wash before reuse.





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P377 Leaking gas fire: Do not extinguish, unless leak can be

stopped safely.

P381 Eliminate all ignition sources if safe to do so.

P391 Collect spillage.

Storage:

P403 Store in a well-ventilated place.

P403 + P233 Store in a well-ventilated place. Keep container

tightly closed.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste dis-

posal plant.

Other hazards None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture Pure substance

Substance name methyl bromide

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
bromomethane	74-83-9	>= 90 - <= 100

SECTION 4. FIRST AID MEASURES

If inhaled Get medical attention immediately.

Remove to fresh air.

Keep patient warm and at rest. Keep respiratory tract clear.

Give oxygen or artificial respiration if needed.

Gently wipe or rinse the inside of the mouth with water.

In case of skin contact Get medical attention immediately.

Take off contaminated clothing and shoes immediately.

Wash off with soap and water.

In case of eye contact Get medical attention immediately.

Rinse immediately with plenty of water, also under the eyelids,

for at least 15 minutes.

If swallowed Get medical attention immediately.

Never give anything by mouth to an unconscious person.

Most important symptoms

and effects, both acute and

delayed

Symptoms may be delayed.

Dizziness Blurred vision Weakness





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> Staggering gait Slurred speech Nausea Vomiting

Loss of appetite Effects of breathing high concentrations of vapour may in-

clude: Convulsions Lung oedema Lack of coordination

Fatigue

corrosive effects

Protection of first-aiders : First Aid responders should pay attention to self-protection

and use the recommended protective clothing

If potential for exposure exists refer to Section 8 for specific

personal protective equipment.

Notes to physician : For specialist advice physicians should contact the Poisons

Information Service.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment.

Specific hazards during fire-

fighting

Container may explode if heated.

Burning produces noxious and toxic fumes.

Thermal decomposition can lead to release of irritating gases

and vapours.

Further information : Use a water spray to cool fully closed containers.

Prevent fire extinguishing water from contaminating surface

water or the ground water system.

Special protective equipment :

for firefighters

Wear full protective clothing and self-contained breathing ap-

paratus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Ensure adequate ventilation.

Use personal protective equipment.

Evacuate immediate area of spill or leak. Use a

NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied/SCBA respirator for entry into affected area to correct problem. Move leaking or damaged cylinders or containers outdoors or to an isolated location, observing strict safety precautions. Work upwind if possible. Allow spill to evaporate. Do not permit entry into spill area by persons without appropriate respiratory protection until concentration of methyl bromide is determined to be less

than 5 ppm.

Do not contaminate water, food or feed by storage or disposal





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or cleaning of equipment.

Environmental precautions : Toxic to aquatic life.

Do not allow contact with soil, surface or ground water. Do not flush into surface water or sanitary sewer system. Do not use product nearer than 10 m from streams and lakes.

Methods and materials for containment and cleaning up

Allow to evaporate.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Handle in accordance with good industrial hygiene and safety

practice.

Avoid contact with skin, eyes and clothing. Use personal protective equipment as required.

Do not breathe vapours or spray mist.

Handle with extreme care. Wear respiratory protection.

Conditions for safe storage : Keep container tightly closed.

Keep in a dry, cool and well-ventilated place.

Store in upright position only.

Store locked up.

Further information on stor-

age stability

Stable under recommended storage conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
bromomethane	74-83-9	TWA	1 ppm	ACGIH
		С	20 ppm 80 mg/m3	OSHA Z-1
		TWA	5 ppm 20 mg/m3	OSHA P0
bromomethane	74-83-9	TWA	1 ppm	ACGIH
		С	20 ppm 80 mg/m3	OSHA Z-1
		TWA	5 ppm 20 mg/m3	OSHA P0

Engineering measures : Use local ventilation to keep levels below established thresh-

old values.

Adequate general ventilation is recommended when handling

to control airborne levels.

Do not use in areas without adequate ventilation. Use mechanical ventilation for general area control.

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Personal protective equipment

Respiratory protection : If the concentration of methyl bromide as measured by detec-

tor tube exceeds 5 ppm at any time, all persons must wear

NIOSH/MSHA approved SCBA.

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever

workplace conditions warrant a respirator's use.

Eye protection : Safety glasses with side-shields

or

Face-shield

Skin and body protection : Complete suit protecting against chemicals

Hygiene measures : Use the appropriate detector tubes and pumps for determin-

ing methyl bromide air concentrations.

Make sure piping is empty before doing maintenance work.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : gas

Colour : colourless

Odour : odourless

Odour Threshold : No data available

pH : Not applicable

Melting point/range : Not applicable

Boiling point/boiling range : 38.5 °F / 3.6 °C

Flash point : Not applicable

Evaporation rate : Not applicable

Upper explosion limit / Upper

flammability limit

ca. 15 %(V)

Lower explosion limit / Lower

flammability limit

ca. 10 %(V)

Vapour pressure : 1,866.5 hPa (68 °F / 20 °C)

3,466.4 hPa (104 °F / 40 °C)

Relative vapour density : ca. 3.27

Relative density : 1.7 (32 °F / 0 °C)

Density : 14.45 lb/gal

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Solubility(ies)

Water solubility : 17.5 g/l (68 °F / 20 °C)

No data available

Solubility in other solvents : No data available

Partition coefficient: n-

octanol/water

No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Self-Accelerating decomposi-

tion temperature (SADT)

Method: No information available.

Viscosity

Viscosity, kinematic : No data available

Not applicable

Oxidizing potential : No information available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Stable under recommended storage conditions.

Chemical stability : No decomposition if stored and applied as directed.

No decomposition if stored and applied as directed.

Possibility of hazardous reac-

tions

Hazardous polymerisation does not occur.

No hazards to be specially mentioned.

Conditions to avoid : None known.

No data available

Incompatible materials : Aluminium

Zinc

Alkali metals Strong bases

Hazardous decomposition

products

Bromine

Carbon dioxide (CO2)
Carbon monoxide
Hydrogen halides

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SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation Ingestion Skin contact

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat): 214 mg/kg

Remarks: Toxic if swallowed.

Acute inhalation toxicity : Acute toxicity estimate: 700 ppm

Exposure time: 4 h
Test atmosphere: gas
Method: Calculation method

Components:

bromomethane:

Acute oral toxicity : LD50 Oral (Rat): 214 mg/kg

Skin corrosion/irritation

Product:

Result : Irritating to skin.

Serious eye damage/eye irritation

Product:

Result : Irritating to eyes.

Respiratory or skin sensitisation

Product:

Remarks : No data available

Carcinogenicity

IARC No component of this product present at levels greater than or equal to 0.1% is

identified as probable, possible or confirmed human carcinogen by IARC.

OSHANo component of this product present at levels greater than or equal to 0.1% is

on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is

identified as a known or anticipated carcinogen by NTP.

STOT - single exposure

Product:

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Assessment : May cause respiratory irritation.

STOT - repeated exposure

Product:

Assessment : May cause damage to organs through prolonged or repeated

exposure.

Aspiration toxicity

Product:

No aspiration toxicity classification

Further information

Product:

Remarks : Methyl bromide is a poison and can cause respiratory dis-

tress, cardiac arrest and central nervous system effects. Overexposure may cause neurotoxic effects from which re-

covery may be slow.

Methyl bromide demonstrates genotoxicity in several test sys-

tems at levels above the TLV.

In a two year inhalation cancer bioassay with rats at 3, 30 and

90 ppm no tumors were observed.

In a two generation inhalation reproduction study with rats at 3, 30 and 90 ppm the no observed effect level was 3 ppm. At the higher doses organ weight variation was observed in

some offspring.

In a 24 month chronic dietary study in rats, a no observable effect level (NOEL) for systemic toxicity of microencapsulated methyl bromide was considered to be 50 ppm (equivalent to 2.20 mg/kg/day for males and 2.92 mg/kg/day for females). The low observable effect level (LOEL) was considered to be 250 ppm (equivalent to 11.10 mg/kg/day for males and 15.12 mg/kg/day for females) based on reduced food consumption, body weight gains and body weights noted during the first 12 to 18 months of the study. Methyl bromide was not oncogenic upon dietary administration for two years.

In a two year inhalation study in B6C3FI mice, exposed to levels of 0, 10, 33 or 100 ppm for 6 hours per day, 5 days per week, degenerative changes in the cerebellum and cerebrum, myocardial degeneration and cardiomyopathy, sternal dysplasia, and olfactory epithelial necrosis and metaplasia were observed. There was no evidence of carcinogenic activity.

In an EPA/NIH sponsored epidemiology study entitled Agricultural Health Study, pesticides were evaluated based on cancer related deaths and questionnaire results provided by

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farmers, nursery workers and commercial pesticide applicators in Iowa and North Carolina. Results associated methyl bromide with an increase in prostate cancer risk in pesticide applicators. Exposures to methyl bromide were not confirmed. Incidence and intensity estimations were based solely on self-reporting via a questionnaire. Although the interpretation of the data collected in the study led to a statistically significant increase in prostate cancer risk for methyl bromide applicators, the authors could not rule out the possibility that the observations may have occurred by chance alone and findings need to be confirmed.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish

Remarks: Very toxic to aquatic organisms.

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Mobility in soil
No data available

Other adverse effects

Product:

Additional ecological infor-

mation

An environmental hazard cannot be excluded in the event of

unprofessional handling or disposal.

Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).

Components:

bromomethane:

Ozone-Depletion Potential : 0.7

Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I

Substances (Update: 2007-07-01)

Group: Group VI

0.6





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Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer (Update: 2009-10-

01)

Group: Annex E - Group I: Methyl bromide

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Improper disposal of excess product, spray mixture or rinsate

is a violation of Federal Law.

If these wastes cannot be disposed of by use according to label instructions, contact your Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance. For registered pesticides, con-

tact your State Pesticide Agency.

Return empty cylinders freight collect to the Great Lakes Solutions location from which shipment was made. Close cylinder valve by turning clockwise until hand tight. Disconnect lines. Replace safety caps and bonnet. Return partial cylinders only after consulting Great Lakes Solutions for proper shipping

instructions.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IMDG-Code

UN number : UN 1062

Proper shipping name : METHYL BROMIDE

Class : 2.3

Packing group : Not assigned by regulation

Labels : 2.3
EmS Code : F-C, S-U
Marine pollutant : yes

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

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number : UN 1062
Proper shipping name : Methyl bromide

Class : 2.3

Packing group : Not assigned by regulation

Labels : POISON GAS

ERG Code : 123 Marine pollutant : yes

Remarks : Poison Inhalation Hazard - Zone C

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Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ	Calculated product RQ
		(lbs)	(lbs)
bromomethane	74-83-9	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ	Calculated product RQ
-		(lbs)	(lbs)
bromomethane	74-83-9	1000	1000

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
bromomethane	74-83-9	1000

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)

Acute toxicity (any route of exposure)

Skin corrosion or irritation

Serious eye damage or eye irritation

Germ cell mutagenicity

Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels es-

tablished by SARA Title III, Section 313:

bromomethane 74-83-9 100 %

California Prop. 65

WARNING: This product can expose you to chemicals including bromomethane, chloromethane, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

bromomethane 74-83-9

California Permissible Exposure Limits for Chemical Contaminants

bromomethane 74-83-9

California List of Acutely Hazardous Chemicals, Toxics and Reactives

bromomethane 74-83-9

International Regulations

Montreal Protocol (Ozone Depleting Substances) : bromomethane





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Please note that Section 3 of this document lists only the hazardous components required by the specific country or region hazard communication regulations. The chemical identifiers listed in Section 3 are used globally for hazard communication purposes and may not reflect those used for chemical inventory coverage in a particular country or region. The chemical inventory information given in Section 15 of this document applies to the product as a whole and should be used when evaluating inventory compliance.

The components of this product are reported in the following inventories:

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

AICS : On the inventory, or in compliance with the inventory

NZIoC : Not in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

US.TSCA : On TSCA Inventory

SECTION 16. OTHER INFORMATION

Further information

Other Emergency Phone Number

Latin America:	Brazil	+55 11 3197 5891
	All other countries	+44 (0) 1235 239 670
Mexico:		+52 55 5004 8763

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants -

1910.1000

OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Lim-

its for Air Contaminants

ACGIH / TWA : 8-hour, time-weighted average OSHA P0 / TWA : 8-hour time weighted average

OSHA Z-1 / C : Ceiling

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of





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the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI -Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ -Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB -Very Persistent and Very Bioaccumulative

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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