



SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

- 1.1 Product identifier
Product Name: Bromoform
Product Codes(s): 611095
Synonyms: Methane, Tribromo-; Methenyl tribromide; Tribromomethane
REACH Registration Number: No data available
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
General Use: mReagent, solvent; for laboratory and industrial applications
Uses advised against: None known
- 1.3 Details of the supplier and of the safety data sheet
Manufacturer/Distributor
GeoLiquids, Inc.
4 E. Piper Lane, Suite F
Prospect Heights, IL 60070
847-215-0938 | 800-827-2411
- 1.4 Emergency telephone number
Call INFOTRAC 1-800-535-5053 | 24 hour emergency

SECTION 2 - HAZARDS IDENTIFICATION

- 2.1 Classification of substance or mixture
Product definition: Substance
Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute Toxicity, Oral - Category 4 [H302]
Skin Irritation - Category 2 [H315]
Eye Irritation - Category 2A [H319]
Acute Toxicity, Inhalation - Category 3 [H331]
Acute Chronic Toxicity - Category 2 [H411]

- 2.2 Label Elements
Hazard Symbol(s):



Signal Word: **Danger**
 Hazard Statement(s):
 H302 - Harmful if swallowed
 H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H331 - Toxic if inhaled
 H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements:
 [Prevention]
 P261 - Avoid breathing mist, vapors and fumes.
 P264 - Wash hands and other skin areas exposed to material 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 protective gloves, protective clothing and eye protection.
 [Response]
 P301 + P330 + P312 - IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.
 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.
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P321 - Specific treatment: Call a POISON CENTER or doctor, or refer to Section 4 of this SDS.
 P332 + P313 - If skin irritation occurs: Get medical attention.
 P337 + P313 - If eye irritation persists: Get medical attention.
 P362 - Take off contaminated clothing and wash before reuse.
 P391 - Collect spillage.
 [Storage]
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
 P405 - Store locked up.
 [Disposal]
 P501 - Dispose of contents in accordance with national and local regulations.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

% by Weight	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
90 - 100	Bromoform	75-25-2	200-854-6	602-007-00-X	H302, H315, H319, H331, H411

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to the health or the environment and hence require reporting in this section.

3.2 Mixtures

Chemical characterization (preparation)

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

- Following inhalation: If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Loosen tight fitting clothing such as a collar, tie, belt or waistband. Seek immediate medical attention.
- Following eye contact: Immediately flush eyes with large amounts of water for 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after the first 2 minutes and continue rinsing. Seek immediate medical attention, preferably from an ophthalmologist.
- Following skin contact: Flush skin with large amounts of water while removing contaminated clothing and continue rinsing for at least 15 minutes. Wash contaminated clothing and shoes thoroughly before reuse. If irritation occurs or persists, seek medical attention.
- Following ingestion: Rinse mouth with water if victim is conscious. Remove dentures, if present. DO NOT induce vomiting. Give 1 - 2 cupfuls of water or milk to drink if victim is conscious, alert and able to swallow. Never give anything by mouth to an unconscious or convulsing person. Contact a POISON CENTER or doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Potential health symptoms and effects
 - Eyes: Causes serious eye irritation with redness, irritation, swelling, blurred vision and pain. Lachrymator (substance that increases the flow of tears). May cause chemical conjunctivitis.
 - Skin: Causes skin irritation. Harmful if absorbed through the skin.
 - Inhalation: Causes irritation of the respiratory tract with sore throat, nasal irritation, cough and shortness of breath. Toxic if inhaled. Inhalation of high concentrations may cause central nervous system effects characterized by nausea vomiting, headache, salivation, dizziness, unconsciousness and coma. May cause liver and kidney damage. May cause narcotic effects in high concentration. Can product delayed pulmonary edema.
 - Ingestion: Causes gastrointestinal irritation with nausea, vomiting, abdominal pain and diarrhea. Harmful if swallowed. May cause liver and kidney damage. May cause central nervous system depression characterized by dizziness, disorientation, slurred speech, unconsciousness and death. Human fatalities have been reported from acute poisoning.
 - Chronic: Pre-existing disorders of the eyes, skin and respiratory system may be aggravated by exposure to this product. Repeated exposure may cause central nervous system damage. Prolonged and repeated exposure may have a toxic effects on the liver and kidneys. Prolonged skin exposure may cause dermatitis. Symptoms may be delayed. Bromoform is a confirmed animal carcinogen. Refer to Section 11.2.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to Doctor and Hospital Personnel
Treat symptomatically and supportively. Symptoms may be delayed.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishable media

Suitable methods of extinction: Use extinguishing media suitable for the surrounding fire.
Unsuitable methods of extinction: None known.

5.2 Special hazards arising from the substance or mixture

Closed containers may explode due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.
Explosion hazards: Not considered to be an explosion hazard.

5.3 Advice for firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. If possible, water contaminated by this material should be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures
Approach spill from upwind direction, isolate the area and evacuate non-essential personnel. Ventilate the area. Remove all sources of ignition. Wear all appropriate personal equipment specified in Section 8. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator.
- 6.2 Environmental precautions
Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.
- 6.3 Methods and materials for containment and cleaning up
Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Shovel or sweep up material and place into an approved container for proper disposal. Observe possible restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches which lead to waterways. Dispose of waste via a licensed waste disposal contractor.
- 6.4 Reference to other sections
See Section 13 for additional waste treatment information.

SECTION 7 - HANDLING AND STORAGE

- 7.1 Precautions for safe handling
Observe label precautions. Wear all appropriate protective equipment specified in Section 8. Keep containers closed when not in use. Avoid sources of ignition. Do not get in eyes or on skin or clothing. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear appropriate respiratory protection.
Advice on protection against fire and explosion
Not expected to be a fire or explosion hazard
- 7.2 Conditions for safe storage, including any incompatibilities
Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10.5), food and drink. Transfer only to approved Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10.5), food and drink. Transfer only to approved have been opened must be carefully resealed and kept upright to prevent spillage. Containers of this material may be hazardous when empty as they may retain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.
- 7.3 Specific end uses
Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Control parameters
Occupational exposure limits
CAS Number 75-25-2
Ingredient Bromoform
OSHA PEL 0.5 ppm, 5 mg/m3 TWA; Skin designation
ACGIH TLV 0.5 ppm, 5.2 mg/m3 TWA; Skin designation
NIOSH 0.5 ppm, 5 mg/m3 TWA; 850 ppm IDHL; Skin designation
- 8.2 Exposure controls
Engineering Measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1 for additional data.
Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.
Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking or using the lavatory.
Eye/face protection: Wear protective goggles or safety glasses with non-perforated side shields and a face shield. Refer to 29 CFR 1910.133, ANSI Z87.4 or Standard EN 166.
Hand Protection: Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of gloves must be greater than the intended use period.
Other protective equipment: Protective clothing. Protective boots, if the situation requires.
Respiratory Protection: Use of local ventilation is preferred. Always use an approved respirator when aerosols or vapors are generated. Where risk assessment shows air-purifying respirators are appropriate use a full-faced respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

- 9.1 Information on basic physical and chemical properties
- | | |
|---|----------------------------------|
| Appearance | Clear, colorless liquid |
| Odor | Chloroform-like |
| Odor Threshold | No data available |
| Molecular Weight | 252.73 g/mol |
| pH | No data available |
| Freezing/Melting Point, Range | 8.3 °C (46 °F) |
| Initial Boiling Point | 149.5 °C (302 °F) @ 0.7598 mm Hg |
| Evaporation Rate | No data available |
| Flammability (solid, gas) | Not applicable |
| Flash Point | Not applicable |
| Autoignition Temperature | No data available |
| Decomposition Temperature | No data available |
| Lower Explosive Limit (LEL) | No data available |
| Upper Explosive Limit (UEL) | No data available |
| Vapor Pressure | 5 mm Hg @ 20 °C |
| Vapor Density | 8.7 (Air = 1) |
| Specific Gravity | 2.89 @ 20 °C |
| Viscosity | No data available |
| Solubility in Water | 3.2 g/l @ 30 °C |
| Partition Coefficient:
n-octanol/water | log Pow = 2.38 |
| Volatiles by Volume @ 21 °C | 100% |
- 9.2 Other data
No data available

SECTION 10 - STABILITY AND REACTIVITY

- 10.1 Reactivity
Stable at room temperature and under normal conditions of handling and use.
- 10.2 Chemical stability
This product is stable under recommended storage conditions, handling and use. Light sensitive material.
- 10.3 Possibility of hazardous reactions
May react explosively or exothermically with incompatible materials.
Hazardous polymerization does not occur.
- 10.4 Conditions to avoid
Contact with incompatible materials; temperature extremes; direct sunlight.
- 10.5 Incompatible materials
Strong oxidizing agents, strong acids, strong bases, active metals
- 10.6 Hazardous decomposition products
Thermal decomposition products include oxides of carbon, hydrogen bromide, irritating and toxic fumes and gases.

SECTION 11 - TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects
- Acute Oral Toxicity
 - LD50, rat: 933 mg/kg
 - LDLo, human: 143 mg/kg
 - Acute inhalation toxicity
 - LC50, rat: 31.7 mg/l, 2 h
 - Acute dermal toxicity
 - No data available
 - Skin irritation/corrosion
 - Causes skin irritation
 - Eye irritation/corrosion
 - Causes serious eye irritation
 - Sensitization
 - No data available
 - Genotoxicity in vitro
 - No data available
 - Mutagenicity
 - No data available
 - Specific organ toxicity - single exposure
 - No data available

Specific organ toxicity - repeated exposure
 No data available
 Aspiration hazard
 No data available

11.2 Further information

Bromoform (CAS #75-25-2): IARC Group 3 carcinogen - Not classifiable as to its carcinogenicity to humans; ACGIH A3 carcinogen - Confirmed animal carcinogen with unknown relevance to humans. Not classified as a carcinogen by NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product in humans, nor is there any available data that indicated that it causes adverse developmental or fertility effects in humans.
 Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity

Acute and prolonged toxicity to fish: LC50 - Lepomis macrochirus (Bluegill sunfish), 96 h: 29 mg/l
 Acute toxicity to aquatic invertebrates: EC50 - Daphnia magna (Water flea), 48 h: 46 mg/l

12.2 Persistence and degradability

No data available

12.3 Bioaccumulation potential

Not expected to bioaccumulate

12.4 Mobility in soil

Expected to have moderate mobility in soil

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

Additional ecological information
 Do not allow material to run into surface waters, wastewater or soil.
 An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 - DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
 Hazardous waste: Bromoform (CAS #75-25-2) - RCRA Hazardous Waste Code, U225

SECTION 14 - TRANSPORT INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

U.S. DOT (Domestic Ground Transportation)

Proper Shipping Name: Bromoform
 Hazard Class: 6.1
 UN/NA: UN2515
 Packing Group: III
 NAERG: Guide #159
 Packaging Authorization: Non-Bulk: 49 CFR 173.203; Bulk: 173.241
 Packaging Exceptions: 49 CFR 173.153



IMO/IMDG (Water Transportation)

Proper Shipping Name: Bromoform
 Hazard Class: 6.1
 UN/NA: UN2515
 Packing Group: III
 Marine Pollutant: No
 EMS Number: F-A, S-A

ICAO/IATA (Air Transportation)

Proper Shipping Name: Bromoform
 Hazard Class: 6.1
 UN/NA: UN2515
 Packing Group: III

Quantity Limitations: 49 CFR 173.27 and 175.75 - Cargo Aircraft Only: 60 l;
Passenger Aircraft: 220 l

RID/ADR (Rail Transportation)
Proper Shipping Name: Bromoform
Hazard Class: 6.1
UN/NA: UN2515
Packing Group: III

SECTION 15 - REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

U.S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

SHA Process Safety Management Standard: This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

TSCA Status: Bromoform (CAS #75-25-2) is listed on the TSCA Inventory. This product is not subject to TSCA 12(b) Export Notification.

Superfund Amendments and Reauthorization Act (SARA)

SARA 313 Information: Bromoform (CAS #75-25-2) is subject to reporting requirements of Section 313 of the Emergency Planning and Community

Right-to-Know Act of 1986.

SARA Section 311/312 Hazard Categories: Acute Health Hazard, Chronic Health Hazard

SARA 302/304 Extremely Hazardous Substance: This substance is not subject to reporting requirements of these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: This substance is not subject to reporting requirements of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product is contains the following CERCLA reportable substance:

Bromoform (CAS #75-25-2): RQ = 45.4 kg (100 lbs)

Clean Air Act (CAA)

Bromoform (CAS #75-25-2) is listed as a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b).

This product does not contain any Class 1 Ozone depleters.

This product does not contain any Class 2 Ozone depleters.

Clean Water Act (CWA)

Bromoform (CAS #75-25-2) is listed as a Hazardous Substance under the CWA.

Bromoform (CAS #75-25-2) is listed as a Priority Pollutant under the CWA.

Bromoform (CAS #75-25-2) is listed as a Toxic Pollutant under the CWA.

U.S. State Regulation

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986:

Bromoform (CAS #75-25-2) is known to the State of California to cause cancer.

Other U.S. State Inventories:

Bromoform (CAS #75-25-3) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists:

CA, DE, ID, IL, ME, MA, MN, NJ, NY, PA, RI, WA, WI.

Canada

WHMIS Hazard Symbol and Classification



D1B - Toxic material causing immediate and serious toxic effects

Canadian National Pollutant Release Inventory (NPRI): This substance is not listed on the NPRI.

European Economic Community

Labeling (67/548/EEC or 1999/45/EC)



T - Toxic



N - Dangerous for the environment

Risk Phrases:

R22 - Harmful if swallowed.

R23 - Toxic by inhalation.

R36/38 - Irritating to eyes and respiratory system.

R51/53 - Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S1/2 - Keep locked up and out of the reach of children.

S28 - After contact with skin, wash immediately with plenty of soap-suds.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS whenever possible).

S61 - Avoid release to the environment. Refer to special instructions or safety data sheet.

S63 - In case of accident by inhalation, remove casualty to fresh air and keep at rest.

WGK, Germany (Water danger/protection): 3

Global Chemical Inventory Lists

Country	Inventory Name	Inventory Listing*
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*"Yes" indicates that all components of this product are in compliance with the inventory requirements administered by the governing country.

*"No" indicates that one or more components of this product are not on the inventory and are not exempt from listing.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS)

Health	* 2
Flammability	0
Physical Hazard	0
Personal Protection	C

HMIS & NFPA Hazard Rating Legend

* = Chronic Health Hazard

0 = INSIGNIFICANT

1 = SLIGHT

2 = MODERATE

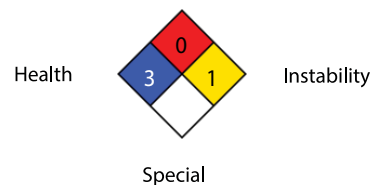
3 = HIGH

4 = EXTREME



National Fire Protection Association (NFPA)

Flammability



The information herein is given in good faith and is believed to be accurate and correct; however, no warranty, expressed or implied, is made. Morre-Tec Industries, Inc. assumes no responsibility for personal injury or property damage that may arise from the use of this material since the conditions of handling and use are beyond our control. It is the responsibility of the user to determine the suitability of this information for the adoption of the safety precautions as may be necessary. It is the responsibility of the user to comply with all Federal, State and local laws and regulations regarding use of this product. Vendees or users assume all risks associated with the use of this material. We reserve the right to revise Safety Data Sheets from time to time as new technical information becomes available. The user has the responsibility to contact the company to make sure that the Safety Data Sheet is the latest issue.

SDS Prepared by:

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