

## 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.  
 15 East Palatine Road, Suite 109  
 Prospect Heights, IL 60070 USA  
 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.

[Response]

P280 - Wear protective gloves, protective clothing and eye protection.  
 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.

[Storage]

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.

[Disposal]

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.  
 P405 - Store locked up.  
 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.

**7.2 Advice on protection against fire and explosion**

Not expected to be a fire or explosion hazard

**7.3 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 containers. Containers that 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.

**7.4 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/m <sup>3</sup> TWA; Skin designation
ACGIH TLV	0.5 ppm, 5.2 mg/m <sup>3</sup> TWA; Skin designation
NIOSH	0.5 ppm, 5 mg/m <sup>3</sup> 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





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

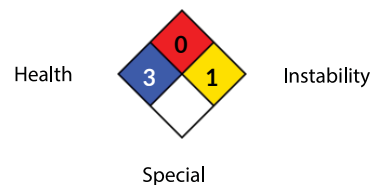
2 = MODERATE

3 = HIGH

4 = EXTREME

National Fire Protection Association (NFPA)

Flammability



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