



**Qualikems**

# Qualikems Lifesciences Pvt. Ltd.

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## Material Safety Data Sheet Bromine

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Bromine

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7726-95-6	Bromine	>99.5	231-778-1

**Hazard Symbols:** T+ C N

**Risk Phrases:** 26 35 50

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: dark red-brown liquid. **Danger!** Strong oxidizer. Contact with other material may cause a fire. Corrosive. Causes eye and skin burns. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Lachrymator (substance which increases the flow of tears). May cause central nervous system effects. May cause cardiac disturbances. May cause liver and kidney damage.

**Target Organs:** Kidneys, central nervous system, liver, cardiovascular system.

#### Potential Health Effects

**Eye:** Causes eye burns. Lachrymator (substance which increases the flow of tears). May cause permanent corneal opacification. May cause chemical conjunctivitis and corneal damage.

**Skin:** Contact with liquid is corrosive and causes severe burns and ulceration. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

**Ingestion:** May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause liver and kidney damage. May cause perforation of the digestive tract. May cause cardiac disturbances. May cause central

nervous system effects. May cause systemic effects. May cause nausea, vomiting, and diarrhea, possibly with blood.

**Inhalation:** Irritation may lead to chemical pneumonitis and pulmonary edema. May cause liver and kidney damage. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Causes chemical burns to the respiratory tract. May cause central nervous system effects including vertigo, anxiety, depression, muscle incoordination, and emotional instability. May cause cardiac abnormalities. May cause systemic effects. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema.

**Chronic:** May cause liver and kidney damage. Effects may be delayed.

#### Section 4 - First Aid Measures

**Eyes:** Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

**Ingestion:** Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** Treat symptomatically and supportively.

#### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water with caution and in flooding amounts. Containers may explode in the heat of a fire. Will react with water to form toxic and corrosive fumes. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes.

**Extinguishing Media:** Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 0; Special Hazard: OX

#### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Absorb spill with an alkaline material such as soda ash or lime. Carefully scoop up and place into appropriate disposal container. Provide ventilation. Do not get water inside containers.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Avoid ingestion and inhalation. Discard contaminated shoes.

**Storage:** Keep away from heat, sparks, and flame. Do not store near combustible materials. Do not store in direct sunlight. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Keep away from reducing agents. Loosen closure cautiously before opening.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Bromine	0.1 ppm TWA; 0.2 ppm STEL	0.1 ppm TWA; 0.7 mg/m <sup>3</sup> TWA 3 ppm IDLH	0.1 ppm TWA; 0.7 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** Bromine: 0.1 ppm TWA; 0.7 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear chemical goggles and face shield.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear a chemical apron. Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** dark red-brown

**Odor:** Pungent odor.

**pH:** Not available.

**Vapor Pressure:** 175 mm Hg @ 20

**Vapor Density:** 7.1 (air=1)

**Evaporation Rate:** Not available.

**Viscosity:** 0.99cP @ 19.5C  
**Boiling Point:** 59 deg C  
**Freezing/Melting Point:**Not available.  
**Decomposition Temperature:**Not available.  
**Solubility:** Partially soluble.  
**Specific Gravity/Density:**3.1200g/cm3  
**Molecular Formula:**Br2  
**Molecular Weight:**159.81

#### Section 10 - Stability and Reactivity

**Chemical Stability:** Stable.  
**Conditions to Avoid:** Confined spaces.  
**Incompatibilities with Other Materials:** Reducing agents, alkalies, chemically active metals, combustible materials.  
**Hazardous Decomposition Products:** Irritating and toxic fumes and gases, hydrogen bromide.  
**Hazardous Polymerization:** Has not been reported.

#### Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 7726-95-6: EF9100000

**LD50/LC50:**

CAS# 7726-95-6:

Inhalation, mouse: LC50 = 750 ppm/9M;

Inhalation, rat: LC50 = 2700 mg/m3;

Oral, mouse: LD50 = 3100 mg/kg;

Oral, rabbit: LD50 = 4160 mg/kg;

Oral, rat: LD50 = 2600 mg/kg;<BR.

**Carcinogenicity:**

CAS# 7726-95-6: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

**Epidemiology:** No data available.

**Teratogenicity:** No data available.

**Reproductive Effects:** No data available.

**Neurotoxicity:** No data available.

**Mutagenicity:** No data available.

**Other Studies:** No data available.

#### Section 12 - Ecological Information

No information available.

#### Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate

## Section 14 - Transport Information

	<b>IATA</b>			
<b>Shipping Name:</b>	BROMINE SOLUTION			
<b>Hazard Class:</b>	8			
<b>UN Number:</b>	UN1744			
<b>Packing Group:</b>	I			

## Section 15 - Regulatory Information

**Hazard Symbols:**

T+ C N

**Risk Phrases:**

R 26 Very toxic by inhalation.

R 35 Causes severe burns.

R 50 Very toxic to aquatic organisms.

**Safety Phrases:**

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 7/9 Keep container tightly closed and in a well-ventilated place.

S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

## Section 16 - Additional Information

**MSDS Creation Date:** 5/14/1998**Revision #3 Date:** 02/26/2005**Revision #4 Date:** 02/25/2010**Revision #5 Date:** 02/24/2015**Revision #6 Date:** 02/23/2020**Revision #7 Date:** 02/22/2025

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