

**MATERIAL SAFETY DATA SHEET****I PRODUCT IDENTIFICATION**

<b>Trade Name:</b>	Bismuth Bromide	<b>Formula:</b>	BiBr <sub>3</sub>
<b>CAS #:</b>	7787-58-8	<b>Chemical Family:</b>	Metal halide
<b>Synonyms:</b>	Bismuth Tribromide	<b>Molecular Weight:</b>	448.69

**II HAZARDOUS INGREDIENTS**

<b>Hazardous Components</b>	<b>%</b>	<b>OSHA/PEL</b>	<b>ACGIH/TLV</b>	<b>Sec. 302</b>	<b>Sec. 304</b>	<b>Sec. 313</b>
Bismuth Bromide	0-100	N/E	N/E	No	No	No

**HMIS Ratings: Health: 4    Flammability: 0    Reactivity: 2    Protective Equipment: J: goggles, gloves, apron, respirator****III PHYSICAL DATA**

<b>Boiling Point (°C):</b>	453 °C	<b>Melting Point:</b>	218 °C
<b>Specific Gravity:</b>	5.72 gm/cc	<b>Vapor Pressure:</b>	N/E
<b>Solubility in H<sub>2</sub>O:</b>	Decomposes	<b>% Volatiles:</b>	N/E or N/A
<b>Appearance and Odor:</b>	Yellow, crystalline, deliquescent powder with a hydrogen bromide odor.		

**IV FIRE AND EXPLOSION HAZARDS DATA****Flash Point:** N/E or N/A**Method Used:** Non-flammable**Extinguishing Media:** Use suitable extinguishing media for surrounding materials and type of fire.**Special Fire Fighting Procedures:** Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.**Unusual Fire and Explosion Hazards:** When strongly heated, bismuth bromide may emit highly toxic fumes of bromine.**V HEALTH HAZARD INFORMATION****Effects of Exposure:**

To the best of our knowledge, the chemical, physical and toxicological properties of bismuth bromide have not been thoroughly investigated and reported.

Bismuth and its salts can cause kidney damage, although the degree of such damage is usually mild. Large doses can be fatal. Industrially it is considered one of the less toxic heavy metals. Serious and sometimes fatal poisoning may occur from the injection of large doses into closed cavities and from extensive application to burns. It is stated that the administration of bismuth should be stopped when gingivitis appears, for otherwise serious ulceration stomatitis is likely to result. Other toxic results may develop, such as a vague feeling of bodily discomfort, presence of albumin or other protein substance in the urine, diarrhea, skin reactions and sometimes serious exodermitis (Sax, Dangerous Properties of Industrial Materials, eighth edition).

The inorganic bromides produce depression, emaciation, and, in severe cases, psychosis and mental deterioration. Bromide

rashes (bromoderma), especially of the face and resembling acne and furunculosis, often occur when bromide inhalation or administration is prolonged (Sax, Dangerous Properties of Industrial Materials, eighth edition).

**Acute Effects:**

**Inhalation:** SEVERE IRRITANT AND CORROSIVE. May cause sneezing, coughing, difficulty breathing, irritation of the mucous membranes, depression, emaciation, altered respiratory rates, convulsions and in severe cases, psychosis and mental deterioration.

**Ingestion:** SEVERE IRRITANT AND CORROSIVE. May cause abdominal pain, irritability, confusion, tremors, memory loss, slurred speech, anorexia, malaise, albuminuria, diarrhea, skin reactions, stomatitis, headache, fever, rheumatic pain, a black line on the gums in the mouth.

**Skin:** SEVERE IRRITANT AND CORROSIVE. May cause irritation, skin lesions, acne-form eruptions and measles-like eruptions.

**Eye:** SEVERE IRRITANT AND CORROSIVE.

**Chronic Effects:**

**Inhalation:** Chronic exposure to bromine is similar to the therapeutic ingestion of excessive bromides. Prolonged inhalation may cause pulmonary edema, bronchitis and skin eruptions.

**Ingestion:** Large doses may cause central nervous system depression, anemia, a black line on gums, ulcerative stomatitis and may affect the function of the liver and kidneys.

**Skin:** Prolonged contact with moist skin may produce severe irritation or chemical burns.

**Eye:** May cause permanent eye injuries.

**Routes of Entry:** Inhalation, Skin, Eyes and Ingestion.

**Medical Conditions Generally Aggravated by Exposure:** Pre-existing respiratory and skin disorders.

**Carcinogenicity:** NTP?: No **IARC Monographs?:** No **OSHA Regulated?:** No

**EMERGENCY AND FIRST AID PROCEDURES:**

**INHALATION:** Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention immediately.

**INGESTION:** Give 1-2 glasses of milk or water, DO NOT induce vomiting; seek medical attention immediately.

**SKIN:** Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention immediately.

**EYE:** Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes. Seek medical attention immediately.

**V REACTIVITY DATA**

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**Stability:** Stable

**Conditions to Avoid:** None

**Incompatibility- Material to Avoid:** Water, acids, oxidizing agents, sodium and potassium.

**Hazardous Decomposition Products:** Fumes of bromine

**Hazardous Polymerization:** Will not occur

**VII SPILL OR LEAK PROCEDURES**

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**Steps to Be Taken in Case Material Is Released or Spilled:** Wear self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred and insure proper ventilation is available. Vacuum up spill using a high efficiency unit (HEPA) and place in a container for proper disposal. Take care not to raise dust.

**Waste Disposal Method:** Dispose of in accordance with applicable Federal, State and Local regulations.

## VIII SPECIAL PROTECTION INFORMATION

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**Respiratory Protection (Specify Type):** Wear a NIOSH-approved dust-mist-fume cartridge respirator.

**Ventilation:** Handle in a controlled atmosphere. Handle in an inert gas such as argon. Use local exhaust to maintain adequate ventilation. General exhaust is not recommended.

**Protective Gloves:** Neoprene

**Eye Protection:** Safety Glasses

**Other Protective Equipment:** Wear protective clothing to prevent contamination of skin and clothes.

## IX SPECIAL PRECAUTIONS

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**Precautions to Be Taken in Handling and Storage:** Bismuth bromide decomposes in water and moisture. Handle and store in a controlled environment and inert gas such as argon.

**Work Practices:** Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

**Hazard Label Information:** Wash thoroughly after handling, store in cool, dry area, use only with adequate ventilation.

Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulations and the Toxic Substance Control Act (TSCA), these materials should only be handled by, or under the direct supervision of, "a technically qualified individual", as defined in 40 CFR 710.2(aa).

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change, and the conditions of handling and use or misuse are beyond our control, ESPI makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein, and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

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