

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name: **Bromine**
 CAS-No.: **7726-95-6**
 Product Number: **L77409**

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Philip Harris Ltd., 2 Gregory Street, Hyde, Cheshire, SK14 4HR,
 UNITED KINGDOM

Telephone: +44 (0)845 1200 506 Fax: +44 (0)161 367 2140

Email: enquiries@philipharris.co.uk

1.4 Emergency telephone number

Emergency Phone #: **+44 (0)845 1200 506**

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

According to Regulation (EC) No1272/2008; Acute toxicity (Category 2), Skin corrosion (Category 1A), Acute aquatic toxicity (Category 1)

According to European Directive 67/548/EEC as amended: Very toxic by inhalation. Causes severe burns. Very toxic to aquatic organisms.

2.2 Label elements

Pictogram 

Signal word Danger

Hazard statement(s): H330 Fatal if inhaled. H314 Causes severe skin burns and eye damage. H400 Very toxic to aquatic life.

Precautionary statement(s): P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/physician.

Hazard symbol(s): 

R-phrases(s): R26 Very toxic by inhalation. R35 Causes severe burns. R50 Very toxic to aquatic organisms.

S-phrases(s): S 7/9 Keep container tightly closed and in a well-ventilated place. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

2.3 Other hazards – no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Bromine

Formula:	Br ₂
Molecular Weight:	159.81
CAS-No.:	7726-95-6
EC-No.:	231-778-1
Index-No.:	035-001-00-5

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed: no data available

4.3 Indication of immediate medical attention and special treatment needed: no data available

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture: Container explosion may occur under fire conditions.

5.3 Precautions for fire-fighters: Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information: May intensify fire; oxidiser.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections: For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid inhalation of vapour or mist. Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities: Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Do not store in polyethylene containers. Handle and open container with care.

7.3 Specific end uses: no data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS No.	Value	Control Parameters	Update
Bromine	7726-95-6	STEL	0.2ppm 1.3mg/m ³	2007-08-01 ¹
Bromine	7726-95-6	TWA	0.1ppm 0.66mg/m ³	2007-08-01 ¹
Bromine	7726-95-6	TWA	0.1ppm 0.7mg/m ³	2006-02-09 ²

¹ UK. EH40 Occupational Exposure Limits

²Europe Commission Directive 91/322/EEC on establishing indicative limit values. Remarks Indicative.

8.2 Exposure controls

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection: Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin protection: The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Handle with gloves.

Body Protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (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).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- a) Appearance: **Form:** Liquid **Colour:** Brown
- b) Odour: no data available
- c) Odour Threshold: no data available
- d) pH: no data available
- e) Melting/freezing point: 7.2 °C Melting point/range: no data available
- f) Initial boiling point and boiling range: 58.8 °C
- g) Flash point: no data available
- h) Evaporation rate: no data available
- i) Flammability (solid, gas): no data available
- j) Upper/lower flammability or explosive limits: no data available
- k) Vapour pressure: 233 hPa at 20 °C; 895 hPa at 55 °C; 301.307 hPa at 25 °C
- l) Vapour density: 5.52 - (Air = 1.0)
- m) Relative density: 3.119 g/mL at 25 °C
- n) Water solubility: 36.5 g/l at 20 °C
- o) Partition coefficient: n-octanol/water: no data available
- p) Autoignition temperature: no data available
- q) Decomposition temperature: no data available
- r) Viscosity: no data available
- s) Explosive properties: no data available
- t) Oxidizing properties: no data available

9.2 Other safety information: no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity: no data available

10.2 Chemical stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions: no data available

10.4 Conditions to avoid: no data available

10.5 Incompatible materials: Reducing agents, Alkali metals, Powdered metals, Aluminum, Stainless steel, Iron, Copper, Organic materials, Bromine will attack some types of plastics, rubber, and coatings, Aldehydes, Ketones, arsenic powder, Amines, Amides, phenols, Alcohol, reacts violently with: Ammonia, Azides, Ozone

10.6 Hazardous decomposition products: formed under fire conditions. - Hydrogen bromide gas

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: LD50 Oral - rat - 2,600 mg/kg

LC50 Inhalation - rat - 2,700 mg/m³

Remarks: Lungs, Thorax, or Respiration: Other changes.

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: 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.

Reproductive toxicity: no data available

Specific target organ toxicity - single exposure: no data available

Specific target organ toxicity - repeated exposure: no data available

Aspiration hazard: no data available

Potential health effects

Inhalation May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion May be harmful if swallowed. Causes severe burns.

Skin May be harmful if absorbed through skin. Causes severe skin burns.

Eyes Causes severe eye burns.

Signs and Symptoms of Exposure: burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Cyanosis, Cardiovascular effects., Respiratory disorders, Lachrymation, Nose bleeding, Vertigo, Irritability, loss of appetite, joint pain, Abdominal pain, Diarrhoea, hoarseness

Additional Information: RTECS: EF9100000

12. ECOLOGICAL INFORMATION

12.1 Toxicity: Toxicity to fish LC50 - *Oncorhynchus mykiss* (rainbow trout) - 0.31 mg/l - 24.0 h

Toxicity to daphnia and other aquatic invertebrates.

LC50 - *Daphnia magna* (Water flea) - 1 mg/l - 48 h

EC50 - *Daphnia magna* (Water flea) - 1.07 mg/l - 24 h

12.2 Persistence and degradability: no data available

12.3 Bioaccumulative potential: no data available

12.4 Mobility in soil: no data available

12.5 Results of PBT and vPvB assessment: no data available

12.6 Other adverse effects: Very toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN-Number

ADR/RID: 1744 IMDG: 1744 IATA: 1744

14.2 UN proper shipping name

ADR/RID: BROMINE

IMDG: BROMINE

IATA: BROMINE

14.3 Transport hazard class(es)

ADR/RID: 8 (6.1) IMDG: 8 (6.1) IATA: 8 (6.1)

14.4 Packaging group

ADR/RID: I IMDG: I IATA: I

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for users: EMS-No: F-A, S-B, IATA Passenger: Not permitted for transport

IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture: no data available

15.2 Chemical Safety Assessment: no data available

16. OTHER INFORMATION

Acute Tox. Acute toxicity; Aquatic Acute Acute aquatic toxicity; H314 Causes severe skin burns and eye damage. H330 Fatal if inhaled. H400 Very toxic to aquatic life. Skin Corr. Skin corrosion; C Corrosive; N Dangerous for the environment; T+ Very toxic; R26 Very toxic by inhalation. R35 Causes severe burns. R50 Very toxic to aquatic organisms.