

SAFETY DATA SHEET (SDS)

Name of chemical : Bromine (Br₂)

• **PRODUCT IDENTIFICATION/COMPANY ADDRESS**

Company Name/Address/Phone	Krishna Chem Industry ,Morbi District:Morbi(Gujarat)363641/2INDIA <u>Contact in case of Emergency Only:</u> +91(9825266757) Contact Person:+91 (9904256562) Mr. Anil Vala
Chemical Name	Bromine

• **HAZARD IDENTIFICATION**

Hazard Classification	Classification according to Regulation (EC) No. 1272/2008 (CLP): Acute Toxicity (Inhalation), Category 2 – H330: Fatal if inhaled Skin Corrosion, Category 1A – H314: Causes severe skin burns and eye damage Acute Aquatic Toxicity, Category 1 – H400: Very toxic to aquatic life
LAB Elements	HAZARD PICTOGRAMS.  GHS05 GHS06 GHS09
Signal word	Danger

Hazard statement	H314 Causes severe skin burns and eye damage. H330 Fatal if inhaled. H400 Very toxic to aquatic life.
Precautionary statement	P260: Do not breathe dust, fumes, gas, mist, vapour's, or spray. P273: Avoid releasing this substance into the environment. P280: Wear protective gloves, protective clothing, and eye or face protection. P284: Wear respiratory protection. P305 + P351 + P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to remove. Continue rinsing. P310: Immediately call a poison centre or doctor.

• **COMPOSITION / INFORMATION AND INGREDIENTS**

Structural Formula	Br-Br	Chemical Family	
		Molecular weight	159.808 g/mole
CAS No		Molecular Formula	Br ₂
Name	Product identifier	%	Classification
Bromine	7726-95-6	100%	AcuteTox. 2; SkinCorr. 1A; AquaticAcute1; H330, H314, H400 M-Factor-AquaticAcute: 10



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• **FIRST AID MEASURE**

Ingestion	Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing. Seek medical attention immediately.
Inhalation	inhaled, remove the affected person to fresh air immediately. If breathing has stopped, provide artificial respiration. If breathing is difficult, administer oxygen. Seek medical attention immediately.
Eyes	Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention immediately.
Skin	In case of contact, immediately flush the affected skin with plenty of water. Seek medical attention.
Antidote	
Most important symptoms/effects, acute and or delayed	Eye Contact- • Causes eye burns. Lachrymator (substance which increases the flow of tears). • May cause permanent corneal pacification. • May cause chemical conjunctivitis and corneal damage.



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	Inhalation- • May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. • Causes severe irritation of upper esophagus to 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, <u>anxiety, depression, muscle incoordination, and emotional instability.</u> Skin contact- • 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 gastroenteritis in acute 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.
Indication of immediate medical attention	No data available.

and special treatment needed	
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• **FIREFIGHTING MEASURES**

Fire extinguishing media	• Use media suitable for surrounding materials.
Hazardous decomposition products	• Non-flammable.
Special fire fighting procedure	• Fire fighters should wear self-contained breathing apparatus and full protective gear.
Precaution to Fire Fighters	Wear self-contained breathing apparatus for fire fighting if necessary.

• **ACCIDENTAL RELEASE MEASURES**

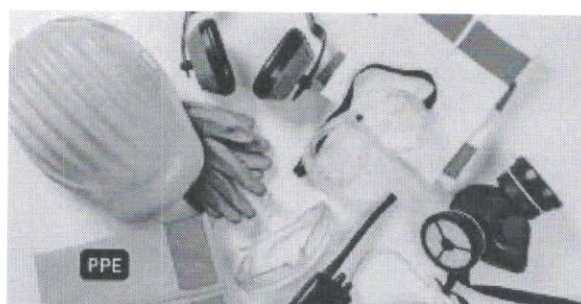
Personal precaution	Wear a self-contained breathing apparatus (SCBA). Avoid inhalation of vapour's. Ensure adequate ventilation in the affected area. Evacuate personnel to designated safe areas
Precautions for the environment	Prevent further leakage or spillage if it can be done safely. Do not allow the product to enter drains, sewers, or waterways. Avoid any discharge into the environment.
Cleanup method	Use a water spray curtain to control and divert vapor dispersion. Neutralize spilled bromine using a 4% sodium thiosulfate solution. Do not touch or walk through spilled material. Prevent entry into sewers, basements, or confined spaces; dike the area if necessary.

• **HANDLING AND STORAGE**

General precaution	• Avoid inhalation of vapors. Prevent contact with skin, eyes, and clothing. Use all required personal protective equipment (PPE)
Personal protection	Wear appropriate personal protective equipment in accordance with Section 8
Storage	• Keep container/bottle tightly closed. • Keep container/bottle in a cool, well-ventilated area.
Incompatibilities	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.

• **EXPOSURE CONTROL**

Personal protection





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Skin	Avoid contact with skin, eyes, and clothing. Wash hands thoroughly before breaks and immediately after handling the product. Wear appropriate chemical-resistant protective gloves and rubber boots. Wear a full-body chemical-resistant protective suit.	Eyes	• Wear chemical goggles and face shield.
Respiration	• Wear Airline respirator or self-contained breathing apparatus while dealing with product.	Other	
Exposure limits			
TLV-TWA	0.1ppm	TLV-STEL	0.2ppm
Appropriate Engineering Control	Avoid contact with skin, eyes, and clothing. Wash hands thoroughly before breaks and immediately after handling the product.		

• **PHYSICALANDCHEMICALPROPERTIES**

Appearance	Red Brown (Dark)Liquid	Molecular Weight	159.808 g/mole	Specific gravity	No data available
Odour/Odor threshold	Pungent and Suffocating. (Strong)	Flash Point °C	Not Pertinent	pH/ Acidity	Not available.



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Auto Ignition Temp. °C	Not Pertinent	Boiling Point °C@760mm Hg	59°C	Melting Point°C	
Vapor Press. MmHg@20 oC		Vapour Density		Water Solubility @ 20 oC	36.5g/l at 20 °C(68°F)
LEL%	Not Pertinent	UEL%	Not Pertinent	%Volatile	
Evaporation rate		Viscosity@ 25 oC		PH	
Octanol Water Partition Coefficient	/ No data Available			No data available	

• **STABILITY AND REACTIVITY**

Chemical Stability	Stable under recommended storage conditions.	Possibility of Hazardous reaction	No data available
Hazardous Reactions/ Decomposition products	Bromine gas, Hydrogen Bromide, Hydrogen Chloride,	Incompatible Materials	Incompatible Materials: Reducing agents; alkali metals; powdered metals including aluminium, stainless steel, iron, and copper; organic materials; aldehydes; ketones; arsenic powder; amines; amides; phenols; and alcohols. Material Compatibility: Bromine may attack certain types of plastics, rubber, and surface coatings.



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Condition to avoid	• Confined spaces & contact with material mentioned in material to avoid section
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• **TOXICOLOGICAL INFORMATION**

Routes of exposure	Ingestion, Eyes, Inhalation, Absorption				
LD50(oral/ rats) mg/kg	2600 mg/kg	LD50(dermal/ rats) mg/kg		LC50(inhalation/ rats)	7501 hours
Target Organ Effects	Respiratory system				
Symptoms related to physical, chemical & toxicological characteristics					

• **ECOLOGICAL INFORMATION**

Mobility in Soil	Due to its high volatility, the product is unlikely to contaminate soil or groundwater.
Persistence and degradability	No data available.
Bio accumulative Potential	No data available
Effects on fish (Eco toxicity)	Waste material must be disposed of in accordance with applicable federal, state, and local environmental regulations.
Effects on birds	No data available
Effects on bees	No data available

• **DISPOSAL CONSIDERATIONS**

Dispose of waste and residues in accordance with local authority requirements.

• **TRANSPORT INFORMATION**

UN No.	---	IMDG No.	---
Shipping Name	Bromine	Hazard class	---
Packing group	---	Hazard class Sub	---
Marine Pollutant	---	Labels required	----
Warning Statement	---		
Packaging/Precaution			
Shipping Marking			

• **REGULATORY INFORMATION**

LABELING:

Risk Phrases (R):

R26: Very toxic if inhaled.

R35: Causes severe burns.

R50: Very toxic to aquatic organisms.

Safety Phrases (S):

S26: In case of eye contact, rinse immediately with plenty of water and seek medical attention.

S45: In the event of an accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S7/9: Keep the container tightly closed and store in a well-ventilated area.

S61: Avoid release to the environment. Refer to special instructions or the Safety Data Sheet.

- **OTHER INFORMATION**



NFPA Classification:

Health Hazard: 3

Fire Hazard: 0

Reactive Hazard: 0

Special Hazard: OX

The information provided in this Safety Data Sheet is believed to be accurate and reliable as of the date of issuance. It is intended solely for guidance on the safe handling, use, processing, storage, transportation, disposal, and release of the product and does not constitute a warranty or guarantee of quality. The information applies exclusively to the specified material and may not be applicable when used in conjunction with other materials.