

Safety Data Sheet

Classified according to WHMIS 2015

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: Bromine Water, Saturated, approximately 3% (w/v)

Product Number: 1195

Other Identifying Product Numbers: 1195-16, 1195-32, 1195-4, 1195-8

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

1.3. Details of the Supplier of the Safety Data Sheet

Company: Ricca Chemical Company

Address: 448 West Fork Drive

Arlington, TX 76012 USA

Telephone: 888-467-4222

1.4. Emergency Telephone Number (24 hours)

CHEMTREC (USA)

800-424-9300

CHEMTREC (International)

1+ 703-527-3887

SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

Hazard Class	Category	Hazard Statements:	Precautionary Statements:
Acute Toxicity - Inhalation	Category 4	H332	P261, P271, P304+P340, P312
Skin Corrosion / Irritation	Category 1	H314	P260, P264, P280, P301+P330+P331, P303+P361+P353, P363, P304+P340, P310, P321, P305+P351+P338, P405, P501
Eye Damage / Irritation	Category 1	H318	P280, P305+P351+P338, P310
Hazardous to the Aquatic Environment (Acute)	Category 2	H401	P273, P501

Safety Data Sheet

2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H401	Toxic to aquatic life.

Precautionary Statements:

Precautionary Number	Precautionary Statement
P260	Do not breathe fumes, mist, vapors, or spray.
P261	Avoid breathing fumes, mist, vapors, or spray.
P264	Wash arms, hands and face thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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 physician.
P312	Call a POISON CENTER or physician if you feel unwell.
P321	Specific treatment (Wash areas of contact with water).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents in accordance with local, state, federal and international regulations.

2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

Safety Data Sheet

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	96.90
Bromine	Br ₂	159.80 g/mol	7726-95-6	3.10

SECTION 4: First-Aid Measures

4.1. General First Aid Information

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. May cause irritation, redness and pain; can lead to permanent damage if allowed to remain in contact with the eyes.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Skin Contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. May cause irritation, slow healing skin ulcers and acne.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Dilute with water or milk. Vomiting may occur spontaneously but do not induce. Call a physician immediately.

4.2. Most Important Symptoms and Effects, Acute and Delayed

Causes severe skin burns and eye damage. Causes serious eye damage. Harmful if inhaled. WARNING! Hazardous fumes and liquid. Use with adequate ventilation. Avoid breathing vapor. Avoid contact with skin, eyes, or clothing. If ingested, do not induce vomiting. Dilute with large quantity of water and call a physician. Wash areas of contact with plenty of water. For eyes, get medical attention. The action of Bromine is essentially the same as that of Chlorine. Exercise care when opening the bottles since pressure may have developed, especially if the solution temperature has been raised. Keep ammonia water within reach when handling Bromine. EYE CONTACT: May cause irritation, redness and pain; can lead to permanent damage if allowed to remain in contact with the eyes. SKIN CONTACT: May cause irritation, slow healing skin ulcers and acne.

4.3. Medical Attention or Special Treatment Needed

Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water). Irrigate immediately with large quantity of water for at least 30 minutes. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Observe 48 hours for lung effects. Wash areas of contact with soap and water for at least 15 minutes. Call a physician if irritation develops. Dilute with water or milk. Vomiting may occur spontaneously but do not induce. Call a physician immediately.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.



Safety Data Sheet

5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard. Incompatible with a number of other chemicals. Violent and explosive reactions are possible.

5.3. Special Protective Equipment for Firefighters

Wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

6.2. Cleanup and Containment Methods and Materials

Contain spill. Do not flush to sewer. Absorb with suitable inert material (vermiculite, dry sand, etc) and place in a chemical waste container for proper disposal in an approved waste disposal facility. Ventilate area of spill. Dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store locked up. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Keep container tightly capped when not in use. Refrigeration will help maintain the Bromine concentration by reducing the volatility of the Bromine.

Safety Data Sheet

SECTION 8: Exposure Controls / Personal Protection

8.1 Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Bromine (7726-95-6)	TWA	USA	"0.1 ppm TWA; 0.7 mg/m ³ TWA" As Bromine [7726-95-6]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Bromine (7726-95-6)	TLV-TWA	USA	"0.1 ppm TWA" As Bromine [7726-95-6]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Bromine (7726-95-6)	TLV-STEL	USA	"0.2 ppm STEL" As Bromine [7726-95-6]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Bromine (7726-95-6)	TWA	USA	0.1 ppm TWA; 0.7 mg/m ³ TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Bromine (7726-95-6)	TLV-STEL	USA	0.2 ppm STEL	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Bromine (7726-95-6)	TLV-TWA	USA	0.1 ppm TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Bromine (7726-95-6)	TLV-STEL	USA	"0.2 ppm STEL" As Bromine [7726-95-6]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Bromine (7726-95-6)	TLV-TWA	USA	"0.1 ppm TWA" As Bromine [7726-95-6]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Bromine (7726-95-6)	TWA	USA	"0.1 ppm TWA; 0.7 mg/m ³ TWA" As Bromine [7726-95-6]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

8.2. Exposure Controls

Engineering Controls: Use only outdoors or in a well-ventilated area. Work in fume hood.

Respiratory Protection: If the TLV is exceeded, a full-face chemical cartridge respirator may be worn up to 50 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less.

Skin Protection: Wear protective gloves and eye protection. Chemical resistant gloves.

Eye Protection: Wear protective gloves and eye protection. Safety glasses or goggles.

8.3. Personal Protective Equipment

Wear protective gloves and eye protection. If the TLV is exceeded, a full-face chemical cartridge respirator may be worn up to 50 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less. Chemical resistant gloves. Safety glasses or goggles.



Safety Data Sheet

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Dark orange to reddish-brown liquid

Physical State: Liquid

Odor: Data not available.

Odor Threshold: Data not available.

pH: Data not available.

Melting/Freezing Point: Approximately 0°C

Initial Boiling Point/Range: Approximately 100°C - Approximately 100°C

Flash Point: Data not available.

Evaporation Rate: Data not available.

Flammability: Data not available.

Flammability/Explosive Limits: Data not available.

Vapor Pressure: Data not available.

Vapor Density: Data not available.

Relative Density: 1.00

Solubility: Miscible

Partition Coefficient: Data not available.

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

Viscosity: Data not available.

Explosive Properties: Data not available.

Oxidizing Properties: Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage. Bromine is very volatile, the Bromine concentration may slowly decrease from its initial concentration of 3% (w/v) at the time of packaging.

10.2. Possibility of Hazardous Reactions

Data not available.

10.3. Conditions to Avoid and Incompatible Materials

combustible organics, oxidizable material, and most metals.

Safety Data Sheet

10.4. Hazardous Decomposition Products

Will not occur.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not applicable.

Acute Toxicity - Dermal Exposure:

Not applicable.

Acute Toxicity - Inhalation Exposure:

Harmful if inhaled. Avoid breathing fumes, mist, vapors, or spray. Use only outdoors or in a well-ventilated area. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Acute Toxicity - Other Information:

LC50, Inhalation, Rat: 2700 mg/m³ (Bromine), respiratory effects noted. LCLo, Inhalation, Human: (Bromine) 1000 ppm, details of toxic effects not reported other than lethal dose value. LD50, Oral, Rat: 2600 mg/kg (Bromine), details of toxic effects not reported other than lethal dose value.

Skin Corrosion and Irritation:

Causes severe skin burns and eye damage. Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Serious Eye Damage and Irritation:

Causes serious eye damage. Wear protective gloves and eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Respiratory Sensitization:

Not applicable.

Skin Sensitization:

Not applicable.

Germ Cell Mutagenicity:

Not applicable.

Carcinogenicity:

Not applicable.

Reproductive Toxicity:

Not applicable.

Specific Target Organ Toxicity from Single Exposure:

Not applicable.



Safety Data Sheet

Specific Target Organ Toxicity from Repeated Exposure:

Not applicable.

Aspiration Hazard:

Not applicable.

Additional Toxicology Information:

Data not available.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Toxic to aquatic life. Avoid release to the environment. Dispose of contents in accordance with local, state, federal and international regulations.

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in Soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Add slowly in a fume hood to a dilute solution of Ammonium or Sodium Hydroxide with stirring to form non-toxic, water soluble Ammonium or Sodium Bromide and Bromate. Flush down the drain with excess water. Ammonia vapors will neutralize Bromine vapors. Always dispose of in accordance with local, state and federal regulations.



Safety Data Sheet

SECTION 14: Transportation Information

14.1. Transportation by Land-Department of Transportation (DOT, United States of America)

Sizes: 1 L, 120 mL, 250 mL, 500 mL

UN Number: UN1744

Proper Shipping Name: Bromine Solutions

Hazard Class: 8 (6.1)

Packing Group: I

Hazard Label(s):



14.2. Transportation by Air - International Air Transport Association (IATA)

Sizes: 1 L, 120 mL, 250 mL, 500 mL

UN Number: UN1744

Proper Shipping Name: Bromine - POISON INHALATION HAZARD, Zone A

Hazard Class: 8 (6.1)

Packing Group: I

Hazard Label(s):



14.3 Transportation of Dangerous Goods (TDG, Canada)

Sizes: 1 L, 120 mL, 250 mL, 500 mL

UN Number: UN1744

Proper Shipping Name: BROMINE SOLUTION

Hazard Class: 8 (6.1)

Packing Group: I

Hazard Label(s):



Safety Data Sheet

SECTION 15: Regulatory Information

15.1. Occupational Safety and Health Administration (OSHA) Hazards

Not listed.

15.2. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Bromine (CAS # 7726-95-6): "500 lb EPCRA RQ" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): "500 lb TPQ" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): 500 lb EPCRA RQ

Bromine (CAS # 7726-95-6): 500 lb TPQ

15.3. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Not listed.

15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Bromine (CAS # 7726-95-6): "1.0 % de minimis concentration" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): 1.0 % de minimis concentration

15.5. Massachusetts Right-to-Know Substance List

Bromine (CAS # 7726-95-6): "Extraordinarily hazardous" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): Extraordinarily hazardous

15.6. Pennsylvania Right-to-Know Hazardous Substances

Bromine (CAS # 7726-95-6): "Environmental hazard" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): "Present" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): Environmental hazard

Bromine (CAS # 7726-95-6): Present

Water (CAS # 7732-18-5): "Present" As Ethyl alcohol and water [RR-00802-6]

Water (CAS # 7732-18-5): Present

15.7. New Jersey Worker and Community Right-to-Know Components

Bromine (CAS # 7726-95-6): "corrosive" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): "SN 0252 500 lb TPQ" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): "sn 0252" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): corrosive

Bromine (CAS # 7726-95-6): sn 0252

Bromine (CAS # 7726-95-6): SN 0252 500 lb TPQ

15.8. California Proposition 65

Not listed.

15.9. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Bromine (CAS # 7726-95-6): "Present" As Bromine [7726-95-6] (DSL)

Bromine (CAS # 7726-95-6): Present (DSL)

Water (CAS # 7732-18-5): "Present" As Water [7732-18-5] (DSL)

Water (CAS # 7732-18-5): Present (DSL)

Safety Data Sheet

15.10. United States of America Toxic Substances Control Act (TSCA) List

All components of this solution are listed as active on the TSCA Inventory or are mixtures (hydrates) of active items listed on the TSCA Inventory.

Bromine (CAS # 7726-95-6): "Present (ACTIVE)" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): Present (ACTIVE)

Water (CAS # 7732-18-5): "Present (ACTIVE)" As Water [7732-18-5]

Water (CAS # 7732-18-5): Present (ACTIVE)

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Bromine (CAS # 7726-95-6): "231-778-1" As Bromine [7726-95-6]

Bromine (CAS # 7726-95-6): 231-778-1

Water (CAS # 7732-18-5): "231-791-2" As Water [7732-18-5]

Water (CAS # 7732-18-5): 231-791-2

SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

Causes severe skin burns and eye damage. Harmful if inhaled. Toxic to aquatic life.

Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves and eye protection.

IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water). Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents in accordance with local, state, federal and international regulations.

16.2. Miscellaneous Hazard Classes

Canadian Carcinogenicity Hazard Class: Not Applicable.

Physical Hazards Not Otherwise Classified (PHNOC): Not Applicable.

Health Hazards Not Otherwise Classified (HHNOC): Not Applicable.

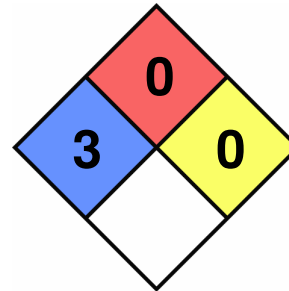
Biohazardous Infectious Materials Hazard Class: Not Applicable.



Safety Data Sheet

16.3. National Fire Protection Association (NFPA) Rating

Health: 3
Flammability: 0
Reactivity: 0
Special Hazard:



16.4. Document Revision

Last Revision Date: 2025-01-31

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.