SECTION 1: Identification

1.1. Identification
Product form: Mixtures
Product name: Bromine Water, Saturated
Product code: LC12000

1.2. Recommended use and restrictions on use
Use of the substance/mixture: For laboratory and manufacturing use only.
Recommended use: Laboratory chemicals
Restrictions on use: Not for food, drug or household use

1.3. Supplier
LabChem, Inc.
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647

1.4. Emergency telephone number
Emergency number: CHEMTREC: 1-800-424-9300 or +1-703-741-5970

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Acute toxicity (inhalation) Category 2 H330 - Fatal if inhaled
Skin corrosion/irritation Category 1A H314 - Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1 H318 - Causes serious eye damage
Hazardous to the aquatic environment - Acute Hazard Category 1 H400 - Very toxic to aquatic life
Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements
GHS US labeling
Hazard pictograms (GHS US): 

Signal word (GHS US): Danger
Hazard statements (GHS US): H314 - Causes severe skin burns and eye damage
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life

Precautionary statements (GHS US): P260 - Do not breathe vapors.
P264 - Wash exposed skin thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P284 - Wear respiratory protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
P363 - Wash contaminated clothing before reuse.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to comply with local, state and federal regulations
If inhaled: Remove person to fresh air and keep comfortable for breathing
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2.3. Other hazards which do not result in classification
Other hazards not contributing to the classification: None under normal conditions.

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients
3.1. Substances
Not applicable
3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>98.7</td>
<td>Not classified</td>
</tr>
<tr>
<td>Bromine</td>
<td>(CAS-No.) 7726-95-6</td>
<td>1.3</td>
<td>Acute Tox. 2 (Inhalation), H330</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 1, H400</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

SECTION 4: First-aid measures
4.1. Description of first aid measures
First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.
First-aid measures after skin contact: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.
First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)
Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met.
Symptoms/effects: Causes severe skin burns and eye damage.
Symptoms/effects after skin contact: Burns.
Symptoms/effects after eye contact: Causes serious eye damage.

4.3. Immediate medical attention and special treatment, if necessary
Obtain medical assistance.

SECTION 5: Fire-fighting measures
5.1. Suitable (and unsuitable) extinguishing media
Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical
No additional information available

5.3. Special protective equipment and precautions for fire-fighters
Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Evacuate unnecessary personnel.
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6.1.2. For emergency responders
Protective equipment: Equip cleanup crew with proper protection.
Emergency procedures: Ventilate area.

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe vapors. Avoid contact during pregnancy/while nursing.
Hygiene measures: Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Comply with applicable regulations.
Storage conditions: Light sensitive. Keep only in the original container in a cool, well ventilated place away from: incompatible materials. Keep container closed when not in use.
Incompatible materials: Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>ACGIH TWA (mg/m³)</th>
<th>ACGIH TWA (ppm)</th>
<th>ACGIH STEL (mg/m³)</th>
<th>ACGIH STEL (ppm)</th>
<th>NIOSH REL (TWA) (mg/m³)</th>
<th>NIOSH REL (TWA) (ppm)</th>
<th>NIOSH REL (STEL) (mg/m³)</th>
<th>NIOSH REL (STEL) (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromine</td>
<td>ACGIH</td>
<td>0.66 mg/m³</td>
<td>0.1 ppm</td>
<td>1.3 mg/m³</td>
<td>0.2 ppm</td>
<td>0.7 mg/m³</td>
<td>0.1 ppm</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>NIOSH</td>
<td>0.7 mg/m³</td>
<td>0.1 ppm</td>
<td>2 mg/m³</td>
<td>0.3 ppm</td>
<td>2 mg/m³</td>
<td>0.3 ppm</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls: Ensure adequate ventilation. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Material should be handled in a laboratory hood whenever possible.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Hand protection:
Wear protective gloves.

Eye protection:
Chemical goggles or face shield.
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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

Wear gas mask with filter type B if conc. in air > exposure limit. Wear appropriate mask

### Personal protective equipment symbol(s):

![Safety Symbols]

### Other information:

Do not eat, drink or smoke during use.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>amber</td>
</tr>
<tr>
<td>Odor</td>
<td>strong</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>1 g/ml</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Thermal decomposition generates: Corrosive vapors.

#### 10.2. Chemical stability

May sublime.

#### 10.3. Possibility of hazardous reactions

Reacts with combustible materials.

#### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.
10.5. Incompatible materials

10.6. Hazardous decomposition products
Hydrogen bromide, bromine. Thermal decomposition generates: Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Fatal if inhaled.

<table>
<thead>
<tr>
<th>Material</th>
<th>Acute toxicity (oral)</th>
<th>Acute toxicity (dermal)</th>
<th>Acute toxicity (inhalation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (gases)</td>
<td>100 ppmV/4h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>0.5 mg/l/4h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>0.05 mg/l/4h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bromine (7726-95-6)**
- LD50 oral rat: 1700 mg/kg
- LC50 inhalation rat (mg/l): 2.7 mg/l/4h
- ATE US (oral) 1700 mg/kg body weight
- ATE US (gases) 100 ppmV/4h
- ATE US (vapors) 2.7 mg/l/4h
- ATE US (dust, mist) 2.7 mg/l/4h

**Water (7732-18-5)**
- LD50 oral rat: ≥ 90000 mg/kg
- ATE US (oral) 90000 mg/kg body weight

Skin corrosion/irritation: Causes severe skin burns and eye damage.
  pH: 2 - 3
Serious eye damage/irritation: Causes serious eye damage.
  pH: 2 - 3

Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: Not classified
Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Viscosity, kinematic: No data available

Likely routes of exposure: Inhalation. Skin and eye contact.
Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met.
Symptoms/effects: Causes severe skin burns and eye damage.
Symptoms/effects after skin contact: Burns.
Symptoms/effects after eye contact: Causes serious eye damage.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - water: Very toxic to aquatic life.
12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Bromine Water, Saturated</th>
<th>Persistence and degradability</th>
<th>Not established.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromine (7726-95-6)</td>
<td>Persistence and degradability</td>
<td>Not established.</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>Persistence and degradability</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Bromine Water, Saturated</th>
<th>Bioaccumulative potential</th>
<th>Not established.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromine (7726-95-6)</td>
<td>Bioaccumulative potential</td>
<td>Not established.</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>Bioaccumulative potential</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

No additional information available

12.5 Other adverse effects

Other information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1 Disposal methods

Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description: UN1744 Bromine, 8, I
UN-No.(DOT): UN1744
Proper Shipping Name (DOT): Bromine
Transport hazard class(es) (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT): I - Great Danger
Hazard labels (DOT): 8 - Corrosive
6.1 - Poison inhalation hazard

Dangerous for the environment: Yes
Marine pollutant: Yes

DOT Packaging Non Bulk (49 CFR 173.xxx): 226
DOT Packaging Bulk (49 CFR 173.xxx): 249
DOT Symbols: + - Fixes (cannot be altered) proper shipping name, hazard class, and packing group
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DOT Special Provisions (49 CFR 172.102):
- 1 - This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone A (see 173.116(a) or 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.
- B9 - Bottom outlets are not authorized.
- B64 - Each single unit tank car tank built after December 31, 1990 must be equipped with a tank head puncture resistance system that conforms to 179.16 of this subchapter.
- B85 - Cargo tanks must be marked with the name of the lading in accordance with the requirements of 172.302(b).
- N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.
- N43 - Metal drums are permitted as single packaging only if constructed of nickel or monel.
- T22 - 10 10 mm Prohibited 178.275(g)(3).
- TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, Tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (Tf) and the maximum mean bulk temperature during transportation (Tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image)
- TP10 - The portable tank must be fitted with a lead lining at least 5 mm (0.2 inches) thick. The lead lining must be tested annually to ensure that it is intact and functional. Another suitable lining material may be used if approved by the Associate Administrator.
- TP12 - This material is considered highly corrosive to steel.
- TP13 - Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.

DOT Packaging Exceptions (49 CFR 173.xxx):
- None

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27):
- Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75):
- Forbidden

DOT Vessel Stowage Location:
- D - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other:
- 12 - Keep as cool as reasonably practicable, 40 - Stow “clear of living quarters”, 66 - Stow “separated from” flammable solids, 74 - Stow “separated from” oxidizers, 89 - Segregation same as for oxidizers, 90 - Stow “separated from” radioactive materials

Other information:
- No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Marine pollutant:
- Yes

Air transport

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Bromine Water, Saturated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
</tr>
</tbody>
</table>

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.
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Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromine</td>
<td>7726-95-6</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

**Bromine (7726-95-6)**

- **RQ (Reportable quantity, section 304 of EPA's List of Lists)**: 500 lb
- **SARA Section 302 Threshold Planning Quantity (TPQ)**: 500 lb
- **SARA Section 311/312 Hazard Classes**: Immediate (acute) health hazard

**15.2. International regulations**

**CANADA**

- **Bromine (7726-95-6)**
  - Listed on the Canadian DSL (Domestic Substances List)

- **Water (7732-18-5)**
  - Listed on the Canadian DSL (Domestic Substances List)

**EU-Regulations**

No additional information available

**National regulations**

No additional information available

**15.3. US State regulations**

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

**SECTION 16: Other information**

Full text of H-phrases: see section 16:

- **H314**: Causes severe skin burns and eye damage
- **H318**: Causes serious eye damage
- **H330**: Fatal if inhaled
- **H400**: Very toxic to aquatic life

**NFPA health hazard**: 4 - Materials that, under emergency conditions, can be lethal.

**NFPA fire hazard**: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

**NFPA reactivity**: 0 - Material that in themselves are normally stable, even under fire conditions.
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<table>
<thead>
<tr>
<th>Hazard Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
<td>4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures</td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
<td>0 Minimal Hazard - Materials that will not burn</td>
</tr>
<tr>
<td><strong>Physical</strong></td>
<td>0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.</td>
</tr>
<tr>
<td><strong>Personal protection</strong></td>
<td><strong>H</strong> Splash goggles, Gloves, Synthetic apron, Vapor respirator</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

*Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.*