SAFETY DATA SHEET: BARIUM CHLORIDE Solutions

1. IDENTIFICATION
Product Name: BARIUM CHLORIDE Solutions
Synonyms:
Formula and Formula Weight: Mixture NA
Integra numbers beginning with: B143.7A; B143.7E; B143.8P
Recommended Use: Commercial/industrial use
Restrictions on Use: No information available

INTEGRA Chemical Company
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000

2. HAZARDS IDENTIFICATION

OSHA Classification: Hazard Category: Hazard Statement:
Acute Toxicity - Oral 3 Toxic if swallowed.
Acute Toxicity - Inhalation 4 Harmful if inhaled.
Signal Word: DANGER

Precautionary Statements
Prevention:
Avoid breathing fume, gas, mist, vapors, spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.

Response
Rinse mouth. If swallowed: Immediately call a poison center, doctor.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison center, doctor if you feel unwell.
Specific treatment (see first aid section on this label)

Storage
Store locked up.

Disposal
Dispose of contents, container in accordance with all governmental regulations.

Hazard Not Otherwise Classified: No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>% Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td>07732-18-5</td>
<td>≥88</td>
</tr>
<tr>
<td>Barium chloride dihydrate</td>
<td>Barium dichloride</td>
<td>10326-27-9</td>
<td>≤12</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Inhalation:
Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult administer oxygen. Seek medical attention.

Eye Contact:
Flush eyes with plenty of water. If irritation persists, seek medical attention.

Skin Contact:
Wash with soap and water. Seek medical attention if irritation develops.

Ingestion:
Rinse mouth and give victim large quantities of water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

Additional notes:
Symptoms and effects include skin, eye irritation or burns; respiratory irritation; excessive salivation; vomiting, severe abdominal pain; violent purging with watery, bloody stool; slow and irregular pulse; muscle twitching progressing to convulsions and/or paralysis; dilated pupils; confusion; death.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Water spray, carbon dioxide, dry chemical or foam.

Special Equipment and Precautions:
Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.

Specific Hazards:
Fire conditions may liberate toxic and noxious fumes.

Hazardous combustion products:
Barium oxide, hydrogen chloride gas.
6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Prevent spread of spill. Absorb with sand or inert material. Sweep or scoop into a disposal container. Flush spill area with water. Wear adequate protective equipment. Contain runoff. Do not flush to sewer or storm drain.

7. HANDLING AND STORAGE

Incompatible Materials: Incompatible with strong acids and strong oxidizers. Bromine trifluoride, 2-Furan percarboxylic acid.

Storage and Handling: Store locked up in a cool, dry, well-ventilated area or cabinet dedicated to the storage of toxic materials. Isolate away from incompatible materials. Keep containers well closed and protect them from physical damage. Avoid breathing fume, gas, mist, vapors, spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA & ACGIH Exposure Limits:

<table>
<thead>
<tr>
<th>Substance</th>
<th>OSHA</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Barium chloride dihydrate</td>
<td>OSHA TWA: 0.5 mg/m3 (as Ba)</td>
<td>ACGIH TWA: 0.5 mg/m3 (as Ba)</td>
</tr>
</tbody>
</table>

Engineering Controls: Use general or local exhaust ventilation to meet TLV and PEL requirements.

Respiratory Protection: Respiratory protection required if airborne concentrations exceed PEL or TLV. Use a NIOSH approved respirator with a particulate filter.

Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure.

Facilities storing or utilizing this material should have readily accessible eyewash stations and safety showers. Select respirators and other safety equipment in accordance with regulations and based upon the particular conditions of use and risk of exposure. Always use safe chemical-handling and good industrial hygiene practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Apearance: Clear, colorless liquid

Odor: Not available

Odor Threshold: Not available

pH: 5 to 8 for a 5% solution

Melting/Freezing Point: Not available

Initial Boiling Point and Boiling Range: Not available

Flash Point: Not available

Evaporation Rate: Not available

Flammability: Not available

Flammable or Explosive Limits (% by volume in air): Upper: Not available, Lower: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Relative Density: Not available

Solubility: Miscible with water

Partition Coefficient: n-octanol/water: Not available

Auto-Ignition Temperature: Not available

Decomposition Temperature: Not available

Viscosity: Not available

10. STABILITY AND REACTIVITY

Reactivity: No information available

Stability: Stable

Possibility of Hazardous Reactions: Hazardous polymerization will not occur

Conditions to Avoid: None identified

Incompatibles: Incompatible with strong acids and strong oxidizers. Bromine trifluoride, 2-Furan percarboxylic acid.

Decomposition Products: Barium oxide, hydrogen chloride gas.

11. TOXICOLOGICAL INFORMATION

Effects of Over Exposure:

Inhalation: Harmful if inhaled. Irritating to the nose and throat and respiratory system. Overexposure may cause coughing, difficulty in breathing and chest pains. Poisoning symptoms are similar to ingestion.

Skin Contact: Contact may cause irritation or burns.

Eye Contact: May irritate or burn the eyes.

Ingestion: Toxic. Symptoms of poisoning include excessive salivation, vomiting, severe abdominal pain, violent purging with watery, bloody stool, slow and irregular pulse, muscle twitching progressing to convulsions and/or paralysis, dilated pupils, confusion, possibly death.

Chronic Effects: None identified

Target Organs: None identified

Additional Effects: May aggravate pre-existing skin conditions, respiratory conditions
12. ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Substance</th>
<th>Aquatic Toxicity Data</th>
<th>Terrestrial Toxicity Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>No information available</td>
<td>No information available</td>
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<td>Barium chloride dihydrate</td>
<td>No information available</td>
<td>No information available</td>
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</tbody>
</table>

Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility in soil: No information available
Other adverse effects: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Procedures: Dispose of material and containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION

This product is a regulated material for domestic ground transporation, per CFR Title 49.

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
</tr>
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<tr>
<td>UN1564</td>
<td>Barium compound, nos (barium chloride solution)</td>
<td>6.1</td>
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</table>

Environmental hazards: No information available
Special precautions: No information available
Bulk transport: No information available

15. REGULATORY INFORMATION

Barium chloride dihydrate is listed in the TSCA inventory and in SARA 313 (as barium compounds).

16. OTHER INFORMATION

OSHA SDS #: 25193 rev 101 3/27/2015

NE = Not established, NA = Not applicable or Not available

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***** END OF SDS *****