Material Safety Data Sheet

Material Name: Sodium Thiosulfate Injection

Section 1 – Chemical Product and Company Information

Manufacturer Information

Hope Pharmaceuticals
16416 N. 92nd Street #125
Scottsdale, AZ 85260

Phone: (480) 607-1970
Fax: (480) 607-1971

Section 2 – Hazards Information

Emergency Overview
May be harmful if swallowed or inhaled. May cause irritation to skin, eyes, and respiratory tract.

Potential Health Effects: Inhalation
Not anticipated under normal product use. May cause irritation to the respiratory tract.

Potential Health Effects: Eyes
Not anticipated under normal product use. May cause irritation.

Potential Health Effects: Ingestion
Not anticipated under normal product use. May cause nausea, vomiting, and/or diarrhea with ingestion.

Potential Health Effects: Skin
Not anticipated under normal product use. May cause irritation.

HMIS Ratings of Sodium Thiosulfate Pentahydrate:
Health: 2 Fire: 0 HMIS Reactivity 0
Hazard Scale: 0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe;
* = Chronic Hazard

Section 3 – Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component</th>
<th>Content Per mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>&lt; 1.0 mL</td>
</tr>
<tr>
<td>10102-17-7</td>
<td>Sodium Thiosulfate Pentahydrate</td>
<td>250 mg</td>
</tr>
<tr>
<td>7747-40-7</td>
<td>Potassium Chloride</td>
<td>4.4 mg</td>
</tr>
<tr>
<td>10043-35-3</td>
<td>Boric Acid</td>
<td>2.8 mg</td>
</tr>
<tr>
<td>1310-73-2</td>
<td>Sodium Hydroxide</td>
<td>pH Adjustment</td>
</tr>
</tbody>
</table>
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Section 4 – First Aid Measures

First Aid: Inhalation
  Remove person to fresh air. Remove contaminated clothing. Seek medical attention.
First Aid: Eyes
  Flush with water. Seek medical attention.
First Aid: Ingestion
  Flush mouth out with water. Seek medical attention.
First Aid: Skin
  Remove contaminated clothing. Flush area with water. Seek medical attention.

Section 5 – Fire Fighting Measures

General Fire Hazards
  See Section 9 for Chemical Properties.
Flash Point
  N/A
Extinguisher Media
  Water spray, carbon dioxide, dry chemical, or foam as appropriate for surrounding fire and materials.
Flammable Limits
  (LEL) – N/A
  (UEL) – N/A
Unusual Fire and Explosion Hazards
  Emits toxic fumes
Hazardous Decomposition Products
  Sodium thiosulfate emits toxic oxides of sulfur and hydrogen sulfide when heated to decomposition.
Special Fire Fighting Procedures
  Firefighters should use self-contained breathing apparatus and protective clothing.

Section 6 – Accidental Release Measures

Containment Procedures
  Contain the discharged material.
Clean-Up Procedures
  Wear recommended personal protective equipment. Vacuum spillage with a vacuum cleaner having a high efficiency particulate (HEPA) filter, or absorb
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- liquid with paper towels. Wipe working surfaces to dryness, then wash with soap and water.

Evacuation Procedures
- Isolate area. Keep unnecessary personnel away.

Special Procedures
- Follow all local, state, federal, and provincial regulations for disposal.

Section 7 – Handling and Storage

Handling Procedures
- No special handling procedures are necessary. Wash thoroughly after handling. Wash hands before eating. Avoid contact with eyes, skin, and clothing. As a general rule, when handling pharmaceutical products, avoid all contact and inhalation of dust, fumes, mists, and/or vapors associated with the product. Do not mix with other drugs.

Storage Procedures
- No special storage procedures are needed. Keep container closed. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not mix with other drugs.

Section 8 – Exposure Controls/Personal Protection

Engineering Controls
- Local exhaust ventilation is recommended.

Personal Protective Equipment
- Respiratory: N/A, however, NIOAH-approved respirator should be available.
- Eyes/Face: Wear chemical safety goggles; face shield (if splashing is possible).
- Skin: Use impervious gloves and body covering to prevent skin contact.
- General: Eye wash fountain and washing facilities are recommended. Wash thoroughly after handling and before eating or drinking.

Exposure Limits
- No OSHA PEL listed for sodium thiosulfate pentahydrate.
- No ACGIH or NIOSH exposure limits listed for sodium thiosulfate pentahydrate.

Section 9 – Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, colorless solution</td>
</tr>
<tr>
<td>Physical State</td>
<td>Aqueous solution</td>
</tr>
<tr>
<td>pH</td>
<td>6.0–9.5</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt; 100° C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Solubility (H₂O)</td>
<td>Miscible</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
</tbody>
</table>
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Section 10 – Chemical Stability and Reactivity Information

Chemical Stability
Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid
Reacts violently with sodium nitrate, potassium nitrate, and sodium nitrite.
Decomposes when exposed to acids. Do not mix with other drugs.

Incompatibility
Reactions can occur with acids, nitrates, and nitrites.

Hazardous Decomposition
May emit toxic fumes during decomposition.

Hazardous Polymerization
Does not occur.

Section 11 – Toxicology Information

Component Analysis – LD₅₀

<table>
<thead>
<tr>
<th>Component</th>
<th>Route</th>
<th>Animal</th>
<th>LD₅₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Oral, Rat</td>
<td></td>
<td>&gt; 90 mL/kg</td>
</tr>
<tr>
<td>Sodium thiosulfate</td>
<td>IV, Rat</td>
<td></td>
<td>2.5 g/kg</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>Oral, Rat</td>
<td></td>
<td>2.6 g/kg</td>
</tr>
<tr>
<td>Boric acid</td>
<td>Oral, Rat</td>
<td></td>
<td>2.66 g/kg</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>No information available.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Carcinogenicity
Sodium thiosulfate pentahydrate is not listed as a carcinogen by the ACGIH, CA Prop 65, IARC, OSHA, or NTP.

Section 12 – Ecological Information

General Product Information
No information available for the product.
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Section 13 – Disposal Considerations

Disposal Instructions
Though sodium thiosulfate pentahydrate is not EPA regulated, waste should be disposed of in accordance with federal, state, and local regulations. Do not mix with other substances.

Section 14 – Transportation Information

US DOT Information
Shipping Name: Sodium thiosulfate pentahydrate is not regulated.

Section 15 – Regulatory Information

US Federal Regulations
Sodium thiosulfate pentahydrate is not identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) or CERCLA (40 CFR 302.4).

State Regulations
Sodium thiosulfate pentahydrate is not present on lists of hazardous substances maintained by CA, FL, MA, MN, NJ, or PA.

Section 16 – Other Information

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws. In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for product literature which may accompany the finished product.