Section 1 - Product and Company Information

Product Name: Heparin, deaminated sodium salt from porcine intestinal mucosa
Product Number: RH405
Brand: Sigma-Aldrich
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5763
Fax: 800 323 6032
Emergency Phone: 414 273 3650 Ext. 5996

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
<th>EC no</th>
<th>Annex Index Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEAMINATED HEPARIN</td>
<td>None</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

Emergency Overview
Caution: Avoid contact and inhalation. Target organ(s): Blood.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove from fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Do not use if skin is cut or scratched. Wash thoroughly after handling.

Storage
Suitable
Keep tightly closed. Store in a cool dry place. Store at -20°C

Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment
Respiratory
Government approved respirator
Hand
Compatible chemical-resistant gloves
Eye
Chemical safety goggles

General Hygiene Measures
Wash thoroughly after handling. Wash contaminated clothing before reuse.

Section 9 - Physical/Chemical Properties

Appearance
Physical State
Solid

Molecular Weight: N/A

pH: N/A

BP/BP Range: N/A

MP/MP Range: N/A

Freezing Point: N/A

Sigma Chemical - RH405
Sigma-Aldrich Corporation
www.sigma-aldrich.com
Section 10 - Stability and Reactivity

Stability
- Stable.

Hazardous Decomposition Products
- Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides, Sodium/sodium oxides.

Hazardous Polymerization
- Will not occur.

Section 11 - Toxicological Information

Route of Exposure
- Skin Contact: May cause skin irritation.
- Eye Contact: May cause eye irritation.
- Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. Multiple Routes: May be harmful by inhalation, ingestion, or skin absorption.

Target Organ(s) or System(s)
- Heparin and its salts act as anticoagulants subcutaneously or intravenously: Blood.

Signs and Symptoms of Exposure
- Heparin and its salts act as anticoagulants subcutaneously or intravenously.

Conditions Aggravated by Exposure
- The toxicological properties have not been thoroughly investigated.

RTECS Number: N/A

Section 12 - Ecological Information
- No data available.

Section 13 - Disposal Considerations
- Appropriate Method of Disposal of Substance or Preparation
  - Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information
- DOT
  - Proper Shipping Name: None
  - Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA
- Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information
- US Classification and Label Text
  - US Statements
    - Caution: Avoid contact and inhalation. Target organ(s): Blood.

- United States Regulatory Information
  - SARA Listed: No

- Canada Regulatory Information
  - WHMIS Classification
    - This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
    - DSL: No
    - NDSL: No

Section 16 - Other Information
- Disclaimer
  - For R&D use only. Not for drug, household or other uses.

- Warranty
  - The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2009 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.