Material Safety Data Sheet
According to ISO 11014-1

1. IDENTIFICATION OF SUBSTANCE

<table>
<thead>
<tr>
<th>Name:</th>
<th>SODIUM POLYSTYRENE SULFONATE SUSPENSION 20%</th>
</tr>
</thead>
</table>
| Manufacturer: | Department of Pharmacy  
Duke University Medical Center  
Box 3089  
Durham, NC 27710  
919-684-5125 |
| Information Department: | Occupational and Environmental Safety Office  
Duke University Medical Center  
Box 3914  
Durham, NC 27710  
919-684-5996 |
| Emergency Information: | Regional Poison Control Center  
800-848-6946 |

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Characterization/Description: | Sodium polystyrene sulfonate and sorbitol solution |
| Synonym(s): | Sodium polystyrene sulfonate: 4-ethenyl-benzenesulfonic acid sodium salt, homopolymer; Sorbitol: glucitol, sorbol |
| Dangerous Components (CAS#, Hazardous Chemical, Percent): |  |
| 25704-18-1 | Sodium polystyrene sulfonate | 20% |
| 50-70-4 | Sorbitol | 20% |
| 57-55-6 | Propylene glycol | <2% |
| N/A | Magnesium aluminum silicate | <2% |
| Multiple | Parabens | <1% |
| Multiple | Cherry flavor | <1% |
| 7732-18-5 | Water | Balance |

3. HAZARDS IDENTIFICATION

| Hazard Description: | Sodium polystyrene sulfonate and sorbitol are mildly toxic by ingestion. Propylene glycol is irritating to the eyes and skin and is rated as slightly toxic. (Hazard description based on concentrated constituents; this product is an aqueous solution.) |
| NFPA Ratings (scale 0-4): |  |
| Health | 1 |
| Fire: | 0 |
| Reactivity: | 0 |
## 4. FIRST AID MEASURES

### Inhalation:
Remove victim to fresh air. Give oxygen or artificial respiration if necessary.

### Skin Contact:
IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. Seek medical attention if warranted.

### Eye Contact:
First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

### Ingestion:
DO NOT INDUCE VOMITING.
If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.
If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open, and lay the victim on his/her side with the head lower than the body. Transport the victim IMMEDIATELY to a hospital.
5. **FIRE-FIGHTING MEASURES**

   **Suitable Extinguishing Agents:**
   
   Use alcohol foam, CO₂, or dry chemical to fight fire. Consider appropriate extinguishing media for surrounding fire.

   **Protective Equipment:**
   
   Self-contained breathing apparatus and protective equipment for fire fighting.

6. **ACCIDENTAL RELEASE MEASURES**

   **Personnel Precautions:**
   
   Wear gloves (disposable surgical) and eye protection (chemical splash goggles).

   **Environmental Precautions:**
   
   None necessary under normal conditions of use.

   **Measures for Cleaning/Collection:**
   
   Use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as contaminated clothing, in a vapor-tight plastic bag for eventual disposal. Wash all contaminated surfaces with a soap and water solution.

7. **HANDLING AND STORAGE**

   **Handling:**
   
   Wear PPE when handling this material. Wash hands after handling.

   **Storage:**
   
   Store in a cool, dry, well-ventilated location.
8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls:
None necessary under conditions of normal use.

Control Parameters:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Limit</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium polystyrene sulfonate</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sorbitol</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Magnesium aluminum silicate</td>
<td>10 mg/m³</td>
<td>ACGIH TLV-TWA</td>
</tr>
<tr>
<td>Parabens</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cherry flavor</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Personal Protective Equipment:

Respiratory Protection
None necessary under conditions of normal use.

Skin Protection
Wear gloves (neoprene) when using this chemical. If this chemical comes into contact with your gloves, or if a tear/puncture develops, remove gloves at once and wash hands.

Eye Protection
Splash-proof safety goggles should be worn while handling this chemical.

9. PHYSICAL AND CHEMICAL PROPERTIES

| Physical State: Liquid                | Color and Odor: brown; sweet odor |
| pH: N/A                               | Boiling/Freezing Points (°C): N/A |
| Flashpoint (°C): N/A                  | Autoignition Temperature (°C): N/A |
| Explosion Properties: N/A             | Vapor Density (air = 1): N/A     |
| Vapor Pressure (mm Hg): N/A           | Specific Gravity (water = 1): N/A |
### 10. STABILITY AND REACTIVITY

**General:** This product is considered stable.

**Materials to Avoid:** Oxidizers and heat.

**Hazardous Decomposition Products:** When heated to decomposition, product may emit toxic fumes of SO$_2$ and Na$_2$O.

### 11. TOXICOLOGICAL INFORMATION

**Acute Toxicity:** Gastrointestinal tract irritation and intestinal obstruction are reported for sodium polystyrene sulfonate; it has an oral LD$_{50}$ of 10 g/kg (mouse). Propylene glycol is an eye and skin irritant. It is slightly toxic by ingestion, skin contact, intraperitoneal, intravenous, subcutaneous, and intramuscular routes. The oral LD$_{50}$ is 20 g/kg (rat). Sorbitol is mildly toxic by ingestion.

**Signs/Symptoms of Overexposure:** Ingestion may cause gastric irritation, anorexia, nausea, vomiting, constipation, hypocalcemia, hypocalcemia, and sodium retention. Possible diarrhea or intestinal obstruction.

**Chronic Toxicity:** This product is not considered a carcinogen by NTP, IARC or OSHA.

### 12. ECOLOGICAL EFFECTS

None anticipated under normal conditions of use.

### 13. DISPOSAL CONSIDERATIONS

Dispose of all waste and contaminated materials associated with this chemical as specified by existing local, state and federal regulations concerning hazardous waste disposal. Contact the Occupational and Environmental Safety Office for specific guidance.

### 14. TRANSPORT INFORMATION

**Proper Shipping Name (DOT):** Not regulated by this mode of transportation.

### 15. REGULATORY INFORMATION

Sodium polystyrene sulfonate and sorbitol are reported in EPA TSCA Inventory. Sorbitol is reported in the EPA Genetic Toxicology Program.

### 16. OTHER INFORMATION

This information is based on our present knowledge; however this shall not constitute a guarantee for any specific product features. No toxicity data are available on this specific formulation; this health hazard assessment is based on information that is available for its components.