Poly(styrenesulfonic acid sodium salt) sc-253291

Material Safety Data Sheet

Hazard Alert Code Key: EXTREME HIGH MODERATE LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Poly(styrenesulfonic acid sodium salt)

STATEMENT OF HAZARDOUS NATURE

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY:
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
(C8-H8-O3-S)x.xNa, "polystyrene sulfonic acid, sodium salt", "benzenesulfonic acid, ethenyl-, homopolymer, sodium", "ethenylbenzenesulfonic acid homopolymer sodium salt", "benzenesulfonic acid, vinyl-, polymers sodium", "vinyl-benzenesulfonic acid, polymers sodium", "poly(styrenesulfonic acid) sodium", "poly(styrenesulfonate) sodium salt", "sodium carbonate stabilised sulfonated polystyrene sodium salt", "styrenesulfonic acid polymer sodium", "sulfonated polystyrene sodium salt", "sulfonated poly(styrenesulfonate)", AEP, "Flexan 500", "Oligo 2", "Versa TL-71, TL-400, TL-500"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Component</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
</table>
| Flammability | 1 |  | Min/Nil=0
| Toxicity | 0 |  | Low=1
| Body Contact | 0 |  | Moderate=2
| Reactivity | 1 |  | High=3
| Chronic | 2 |  | Extreme=4

CANADIAN WHMIS SYMBOLS
RISK

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
- Although ingestion is not thought to produce harmful effects, the material may still be damaging to the health of the individual following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident.
- High molecular weight material; on single acute exposure would be expected to pass through gastrointestinal tract with little change / absorption. Occasionally accumulation of the solid material within the alimentary tract may result in formation of a bezoar (concretion), producing discomfort.

EYE
- Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.

SKIN
- The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED
- The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS
- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.
- This material contains a substantial amount of polymer considered to be of low concern. These are classified under having MWs of between 1000 to 10000 with less than 25% of molecules with MWS under 1000 and less than 10% under 500; or having a molecular weight average of over 10000.
- Workers exposed to polystyrene converting processes show disorders of the liver, blood, nervous system and mucous membranes of the upper respiratory tract. A disturbed menstrual cycle, morphological changes in the placenta and complications arising during pregnancy and childbirth have also been recorded in polystyrene production workers.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>styrenesulfonic acid homopolymer, sodium salt</td>
<td>9080-79-9</td>
<td>&gt;98</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

SWALLOWED
- Immediately give a glass of water. · First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE
- If this product comes in contact with eyes: · Wash out immediately with water. · If irritation continues, seek medical attention.

SKIN
- If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

INHALED
- If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN
- Treat symptomatically.
Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG): Negligible
Upper Explosive Limit (%): Not available
Specific Gravity (water=1): Not available
Lower Explosive Limit (%): Not available

EXTINGUISHING MEDIA
· Foam.
· Dry chemical powder.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Combustible solid which burns but propagates flame with difficulty.
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), sulfur oxides (SOx), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.

FIRE INCOMPATIBILITY

PERSONAL PROTECTION
Glasses:
Chemical goggles.

Gloves:

Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Clean up all spills immediately.
· Avoid breathing dust and contact with skin and eyes.

MAJOR SPILLS

CAUTION: Advise personnel in area.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
· Do NOT cut, drill, grind or weld such containers.
· In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS
· Polyethylene or polypropylene container.
· Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS
· Store in original containers.
· Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/CC</th>
<th>Notes</th>
</tr>
</thead>
</table>


### US - California

**Permissible Exposure Limits for Chemical Contaminants**

- **Chemical**: styrenesulfonic acid homopolymer, sodium salt
- **Regulation**: (Particulates not otherwise regulated Respirable fraction)
- **Limit**: 5 (n)

### US - Tennessee

**Occupational Exposure Limits - Limits For Air Contaminants**

- **Chemical**: styrenesulfonic acid homopolymer, sodium salt
- **Regulation**: (Particulates not otherwise regulated Respirable fraction)
- **Limit**: 5

### US - Wyoming

**Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants**

- **Chemical**: styrenesulfonic acid homopolymer, sodium salt
- **Regulation**: (Particulates not otherwise regulated Respirable fraction)
- **Limit**: 5

### US - Michigan

**Exposure Limits for Air Contaminants**

- **Chemical**: styrenesulfonic acid homopolymer, sodium salt
- **Regulation**: (Particulates not otherwise regulated, Respirable dust)
- **Limit**: 5

### Canada - Prince Edward Island

**Occupational Exposure Limits**

- **Chemical**: styrenesulfonic acid homopolymer, sodium salt
- **Regulation**: (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)
- **Limit**: 10
- **Note**: See Appendix B current TLV/BEI Book

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### PERSONAL PROTECTION

#### RESPIRATOR

Particulate

Consult your EHS staff for recommendations

**EYE**

- Safety glasses with side shields
- Chemical goggles.

**HANDS/FEET**

- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
  - frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
  - dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than
240 minutes according to EN 374) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Experience indicates that the following polymers are suitable as glove materials for protection against undisolved, dry solids, where abrasive particles are not present.
· polychloroprene
· nitrile rubber
· butyl rubber
· fluorocaoutchouc
· polyvinyl chloride
Gloves should be examined for wear and/or degradation constantly.

OTHER
· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

ENGINEERING CONTROLS
· Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
· Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

#### PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>Divided solid</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Range (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Range (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Solubility in water (g/L)</td>
<td>Not available</td>
</tr>
<tr>
<td>pH (1% solution)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Temp (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour Pressure (mmHG)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative Vapor Density (air=1)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

#### APPEARANCE
- Family of products which vary in their physical properties as a result of variations in production. Data presented here is for typical family member. Solid; does not mix well with water.

### Section 10 - CHEMICAL STABILITY

#### CONDITIONS CONTRIBUTING TO INSTABILITY
- Presence of incompatible materials.
- Product is considered stable.

#### STORAGE INCOMPATIBILITY
- Avoid reaction with oxidizing agents.
  Incompatible with carbon and sulfur oxides.
For incompatible materials - refer to Section 7 - Handling and Storage.

### Section 11 - TOXICOLOGICAL INFORMATION

#### STYRENESULFONIC ACID HOMOPOLYMER, SODIUM SALT

#### TOXICITY AND IRRITATION

**STYRENESULFONIC ACID HOMOPOLYMER, SODIUM SALT**
- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

**TOXICITY**
- Oral (rat) LD50: >8000 mg/kg
- Nil Reported
<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation (rat) LC50</td>
<td>2600 mg/m³/4h</td>
</tr>
<tr>
<td>Intraperitoneal (rat) LD50</td>
<td>&gt;6000 mg/kg</td>
</tr>
<tr>
<td>Subcutaneous (rat) LD50</td>
<td>&gt;15000 mg/kg</td>
</tr>
<tr>
<td>Oral (mouse) LD50</td>
<td>&gt;10025 mg/kg</td>
</tr>
<tr>
<td>Intraperitoneal (mouse) LD50</td>
<td>&gt;6750 mg/kg</td>
</tr>
<tr>
<td>Subcutaneous (mouse) LD50</td>
<td>&gt;15000 mg/kg</td>
</tr>
</tbody>
</table>

Respiratory obstruction recorded

**Section 12 - ECOLOGICAL INFORMATION**

No data

**Section 13 - DISPOSAL CONSIDERATIONS**

**Disposal Instructions**

All waste must be handled in accordance with local, state and federal regulations.

- Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
- A Hierarchy of Controls seems to be common - the user should investigate:
  - Reduction
  - Reuse
  - Recycling
  - Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

**Section 14 - TRANSPORTATION INFORMATION**

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

**Section 15 - REGULATORY INFORMATION**

**styrenesulfonic acid homopolymer, sodium salt** (CAS: 9080-79-9, 9003-59-2) is found on the following regulatory lists:

- Canada Domestic Substances List (DSL)
- US Toxic Substances Control Act (TSCA) - Inventory

**Section 16 - OTHER INFORMATION**

**Ingredients with multiple CAS Nos**

Ingredient Name CAS styrenesulfonic acid homopolymer, sodium salt 9080-79-9, 9003-59-2

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Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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