

MATERIAL SAFETY DATA SHEET

Date of Completion June 14, 2000

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24 – Hour Emergency Phone Number : (800) 424-9300

Product: Epox-Acryl (Epoxy Vinyl Ester Resin)

Product Code: EA1

Company: Foresee Orthopedic Products

693 Hi Tech Pkwy.

Oakdale, CA 95361

(209) 845-2930 – phone (209) 845-2830 – fax

2. COMPOSITION / INFORMATION ON INGREDIENTS

Styrene monomer CAS # 000100-42-5 25-60%

Vinyl ester resin CAS # 036425-15-7 40-67%

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Eye: May cause moderate irritation. Vapor may irritate eyes. May cause slight corneal injury. Vapors may cause lachrymation (tears).

Skin: Prolonged exposure may cause skin irritation. Repeated exposure may cause skin burns. Material may stick to skin causing irritation upon removal. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

Ingestion: Single dose oral toxicity is low. The oral LD50 for rate is >4000 mg/kg. If aspirated, may be rapidly absorbed through the lungs and result in injury to other body system.

Inhalation: Excessive vapor concentrations are attainable and could be hazardous on single exposure. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects.

Excessive exposure may cause irritation to upper respiratory tract.

Systemic and other effects: Repeated excessive exposure to high amounts may cause central nervous system, liver, kidney effects and respiratory or eye irritation. Styrene is reported to have caused hearing loss in laboratory animals upon exposure to high concentration (sixteen times the TLV and higher); however, the relevance of this in humans is unknown. For hazard communication purpose under OSHA Standard 29 CFR Part 1910.1200 this mixture contains a component **styrene**, which is listed as a potential carcinogen by IARC. Neither the data from various long-term studies nor from epidemiology of workers exposed to styrene provide adequate basis to conclude that styrene is carcinogenic. In laboratory animals, styrene did not produce any adverse effects on the fetus even at exposure concentrations having an adverse effect on the mother. In animal studies, styrene has been shown not to interfere with reproduction. Results of in vitro and animal mutagenicity tests on styrene have been inconclusive.

4. FIRST AID MEASURES

Eyes: Irrigate immediately with water for at least 5 minutes.

Skin: Wash off in flowing water or shower.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Inhalation: Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.

NOTE TO PHYSICIAN: The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Supportive care. Treatment based on judgment of the physician on response to reaction of patient.

5. FIRE FIGHTING MEASURES

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FLAMMABLE PROPERTIES

Flash Point: 74-84 F

Method Used: PMCC ASTM D-93

FLAMMABLE LIMITS

LFL: 0.9%

UFL: 6.8%

Hazardous Combustion Products: Combustion may produce carbon dioxide and carbon monoxide. Unidentified organic compounds may be formed during combustion.

Other Flammability Info.: Upon exposure to heat or flame, an exothermic reaction can develop, followed by decomposition of product. Keep vapors away from possible ignition sources.

Extinguishing Media: Water fog, foam, alcohol foam, CO₂, dry chemical.

Protective Equipment for Fire Fighters: Wear goggles and a positive-pressure, self-contained breathing apparatus and full protective equipment.

Fire Fighting Instructions: For larger scale fires, straight or direct water streams may be ineffective to extinguish fire, but copious fine water spray will help control situation by its cooling action. For large scale fires, alcohol resistant foams are preferred if available. General purpose synthetic foams or protein foams may function, but much less effectively. Water for, applied gently, may be used as a blanket for fire extinguishments. If possible, contain fire run off water.

6. ACCIDENTAL RELEASE MEASURES

Action to take for Spills and Leaks: Treat as a flammable liquid; keep heat, flame or spark producing equipment away. Protect personnel from styrene containers. Residual resin may be removed using steam or hot soapy water and safe handling practices for the specific solvent are followed.

7. HANDLING AND STORAGE

Handling: When handling, stay in a well ventilated area, or use a respirator.

Storage: Stay away from flames.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines: Styrene, monomer: ACGIH TLV and OSHA PEL are 50 ppe TWA, 100 ppe STEL.

Ventilation: Provide general and or local exhaust ventilation to control airborne concentrations below the exposure guidelines.

Respiratory Protection: Use an approved respirator. Selection of air purifying or supplied-air will depend on the specific operations and the potential airborne concentration of the material.

Skin Protection: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full body suit will depend on operation.

Eye Protection: Use chemical goggles. If vapor exposure causes eye irritation, use a full-face respirator. Eye wash fountain should be located in immediate work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 294 F, 146 C*
Vapor Pressure: 7 mmHg @ 20 C*
Vapor Density: 3.6*
Solubility in Water: Insoluble
Specific Gravity: 1.020 - 1.060
Appearance: Yellow, viscous liquid
Odor: Pungent styrene odor

*Base on Styrene

10. STABILITY AND REACTIVITY

Rev. 0-6/14/00

Chemical Stability: Avoid storage in direct sunlight and at temperatures above 120 F, 49 C

Incompatibility with other Materials: Oxidizing material

Hazardous Polymerization: May occur. Avoid contact with metal salts such as ferric and aluminum chlorides, unintended contact with peroxides, and depletion of inhibitor levels. Avoid exposure to direct light to temperatures above 120 F (49 C).

11. TOXICOLOGICAL INFORMATION

Ingestion: The oral LS50 is >4000mg/kg. If aspirated, may be rapidly absorbed through the lungs and result in injury to other body systems.

12. ECOLOGICAL INFORMATION

Movement & Partitioning: Based on information for styrene. Bioconcentration potential is low. Potential for mobility in soil is low as well.

Degradation & Transformation: Based on information for styrene. Biodegradation under aerobic static laboratory conditions is high (BOC20 or BOD28/ThOD greater than 40%). Degradation is expected in the atmospheric environment within minutes to hours.

Ecotoxicology: Based on information for styrene. Material is slightly toxic to aquatic organisms on an acute basis (LC50 between 10 and 100 mg/l in most sensitive species).

13. DISPOSAL CONSIDERATIONS

Disposal Method: Resin can be disposed of through burning in an adequate incinerator or burying in an approved landfill in accordance with federal, state and local regulations. **DO NOT DUMP INTO ANY BODY OF WATER, ONTO THE GROUND, OR IN THE SEWER.**

- 14. TRANSPORT INFORMATION**
- 15. REGULATORY INFORMATION**
- 16. OTHER INFORMATION**