

**MSDS**

**CMR Resin**



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Revision Date: 02/27/2007  
Print Date: 3/3/2007  
MSDS Number: R0402382  
Version: 1.2

**DOCUMENT**

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**Emergency Contact-Shipper: EMERGENCY PHONE Chem Tree 800-424-9300**

**International : 703-527-3887**

**MATERIAL SAFETY DATA SHEET**

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Styrene monomer	CAS# 000100-42-5	30-60%*
Epoxy Vinyl Ester Resin	CAS# 036425-15-7	40-70%

\*For specific percentage of styrene monomer found in this product, see section 15.

**2. HAZARDS IDENTIFICATION**

Emergency Overview

Appearance: liquid, pungent

WARNING! Unstable Reactive. Flammable Liquid, Toxic by inhalation, Moderate skin irritant, Moderate eye irritant, Carcinogen.

Potential Health Effects

**Routes of exposure**

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

**Eye contact**

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

**Skin contact**

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

**Ingestion**

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

**Inhalation**



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Breathing of vapor or mist is possible. Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

#### **Aggravated Medical Condition**

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, central nervous system, male reproductive system, auditory system

#### **Symptoms**

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage

#### **Target Organs**

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects

#### **Carcinogenicity**

There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC).

#### **Reproductive hazard.**

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.



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#### Other information

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Concentration
STYRENE	100-42-5	>=40-<50%

### 4. FIRST AID MEASURES

#### Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

#### Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

#### Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

#### Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

#### Notes to physician

**Hazards:** This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

**Treatment:** No information available.

### 5. FIRE-FIGHTING MEASURES



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**Suitable extinguishing media**

water spray, carbon dioxide (CO<sub>2</sub>), alcohol-resistant foam, foam, dry chemical

**Hazardous combustion products**

May form: carbon dioxide and carbon monoxide, phenols, toxic fumes, various hydrocarbons

**Precautions for fire-fighting**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid.

**Flammability Class for Flammable Liquids**

Flammable Liquid Class I Flammable Liquid Class IC

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions**

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

**Environmental precautions**

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

**Methods for cleaning up**

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

**7. HANDLING AND STORAGE**

**Handling**



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Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Do not use pressure to empty container. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

**Storage**

Do not store near extreme heat, open flame, or sources of ignition. Maintain inhibitor and dissolved oxygen level. Do not blanket or purge with an inert gas to avoid depleting the oxygen concentration. Store out of direct sunlight. Store in a cool, dry, ventilated area, away from incompatible substances.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Exposure Guidelines**

<b>STYRENE</b>		<b>100-42-5</b>
ACGIH	time weighted average	20 ppm
ACGIH	Short term exposure limit	40 ppm
NIOSH	Recommended exposure limit (REL)	50 ppm
NIOSH	Recommended exposure limit (REL)	215 mg/m <sup>3</sup>
NIOSH	Short term exposure limit	100 ppm
NIOSH	Short term exposure limit	425 mg/m <sup>3</sup>
OSHA Z2	time weighted average	100 ppm
OSHA Z2	Ceiling Limit Value	200 ppm
OSHA Z2	Maximum concentration	600 ppm

**General advice**

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.



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**Exposure controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s). OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

**Eye protection**

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

**Skin and body protection**

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots. Wear normal work clothing covering arms and legs. Wear resistant gloves such as polyvinyl alcohol

**Respiratory protection**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	liquid
<b>Form</b>	No data
<b>Colour</b>	No data
<b>Odour</b>	pungent
<b>Boiling point/range</b>	293 °F / 145 °C
<b>pH</b>	No data
<b>Flash point</b>	79.0 °F / 26.1 °C Pinsky Martens closed cup
<b>Evaporation rate</b>	> 1 Ethyl Ether
<b>Explosion limits</b>	1.1 %(V) 6.1 %(V)
<b>Vapour pressure</b>	0.853 kPa @ 77 °F / 25 °C



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<b>Vapour density</b>	1
<b>Density</b>	1.078 g/cm <sup>3</sup> @ 77 °F / 25 °C 8.7 lb/gal @ 77 °F / 25 °C
<b>Solubility</b>	insoluble in water
<b>Partition coefficient (n-octanol/water)</b>	No data
<b>Autoflammation temperature</b>	No data

**10. STABILITY AND REACTIVITY**

**Stability**

This material is unstable at elevated temperatures and pressures.

**Conditions to avoid**

None known.

**Incompatible products**

Avoid contact with: acids, aluminum chloride, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents, UV light

**Hazardous decomposition products**

May form: carbon dioxide and carbon monoxide, phenols, toxic fumes, various hydrocarbons

**Hazardous reactions**

Product can undergo hazardous polymerization., Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Thermal decomposition**

No data

**11. TOXICOLOGICAL INFORMATION**

**Acute oral toxicity**

STYRENE LD 50 Rat: 2,650 mg/kg

**Acute inhalation toxicity**

STYRENE LC 50 Rat: 2800 ppm, 4 h