

# Material Safety Data Sheet

MSDS Number: C8701C

Issue Date: 12/1/04

Product Name: Avonite Surfaces Inlay Resin

Revised Date: 1/27/2010

Aristech Acrylics LLC  
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Emergency:  
(859) 283-1501 (8 a.m.– 5 p.m. Mon-Fri)  
(800) 424-9300 (Off-Hour Emergencies)

## Section 1 – Product Identification

Product Name: Avonite Surfaces Inlay Resin

Synonyms: N/A

Chemical Name  
: Unsaturated Polyester Resin

## Section 2 – Composition/Information on Ingredients

Ingredient Name	CAS No.	% WT	Exposure Limits
* Avonite Surfaces Inlay Resin	Mixture	100	
Unsaturated Polyester Resin	Mixture	50-55	Y(Hazardous)** N/A – OSHA PEL TWA N/A – ACGIH TLV TWA
Styrene	100-42-5	45	Y (Hazardous)** 50 ppm – OSHA PEL TWA 100 ppm – OSHA STEL 15 min. 20 ppm – ACGIH TLV TWA 40 ppm – ACGIH STEL 15 min.

\*Mixture. Chemicals that follow this listed chemical are part of the listed mixture.

\*\* All ingredients in quantities >1.0% (>0.1% for carcinogens) that are potentially hazardous per OSHA definitions

Some States enforce the PELs that OSHA promulgated in 1989, which were subsequently vacated by the U.S. Supreme Court. Check with your state OSHA agency to determine which PEL is enforced in your jurisdiction.

## Section 3 – Hazard Identification

### Emergency Overview:

WARNING! FLAMMABLE LIQUID AND VAPOR. This product may undergo hazardous polymerization. Vapor may cause flash fire. Expected to cause eye, skin and upper respiratory tract irritation. Exposure to high concentrations of mists or vapors may cause central nervous system depression with headache, drowsiness, nausea, weakness, fatigue, and loss of appetite. May cause dermatitis. Possible aspiration hazard.

### Potential Health Effects:

**Eyes:** Contact with eyes can cause irritation. Symptoms may include tearing, stinging, redness and

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swelling.

**Skin:** Harmful if absorbed through skin. Acute exposures to the skin may result in irritation. Repeated or prolonged contact can cause dermatitis.

**Ingestion:** If swallowed, small amounts of this product are not expected to be toxic. Ingestion can result in gastrointestinal disturbances (vomiting, nausea, diarrhea, abdominal pain and lack of appetite). Possible aspiration hazard. This product, if vomited, may be aspirated into the lungs causing chemical pneumonia which may be life threatening.

**Inhalation:** Inhalation may cause upper respiratory irritation

**Relevant Routes of Exposure:** Inhalation, eye and skin.

**Signs and Symptoms of Acute Overexposure:**

Inhalation of high vapor concentration may irritate the eyes and mucous membranes of the nose, throat and upper respiratory tract. Symptoms may include burning sensation, coughing, sore throat, shortness of breath and dizziness. Severe overexposures can cause confusion, headache, nausea, anorexia, irritability, narcosis, drowsiness, unconsciousness, collapse, coma and possibly death. Repeated or prolonged skin contact with liquid may cause irritation or dermatitis. Symptoms may include redness, itching, dry, scaly and fissured dermatitis, rash and blisters. Eye contact may result in irritation and possible corneal damage. Symptoms may include redness, tearing, burning sensation, swelling of the eye tissue and pain. If swallowed, may cause gastrointestinal disturbances. Symptoms may include nausea, vomiting, sore throat, abdominal pain and lack of appetite. Aspiration of styrene into the lungs may cause chemical pneumonia which may be life threatening.

**Signs and Symptoms of Chronic Overexposure:**

Repeated and prolonged contact with the skin can cause dermatitis. Repeated eye contact may result in conjunctivitis. Chronic inhalation may result in neurologic and behavioral changes, effects on hearing and respiratory tract damage.

**Medical Conditions Generally Aggravated By Exposure:**

Individuals with chronic respiratory disorders may be adversely affected by any fume or airborne particulate matter exposure. Persons with preexisting skin disorders may be more susceptible to the effects of this material.

**Carcinogenicity:**

**NTP:** N/A

**IARC:** Yes

**OSHA:** N/A

**ACGIH:** N/A

**OTHER:** N/A

***Additional Information If Applicable***

Styrene: IARC has reclassified styrene from a Group 3 to a Group 2B, now labeled as a Possible Carcinogen to Humans. The new classification is not based on any significant new evidence that styrene might be carcinogenic, but rather on a

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broadening of the definition of the Group 2B classification. The previous definition only classified a substance as Group 2B if sufficient carcinogenic evidence existed in animal studies. The current definition accepts limited evidence from animal studies if it is coupled with supporting evidence from other relevant studies. Industry groups and independent research organizations are contesting the reclassification due to the current inconclusive scientific evidence linking styrene with cancer.

## Section 4 – First Aid Measures

### Eyes:

Flush immediately with plenty of cool water for at least 15 minutes. Call a physician immediately.

### Skin:

Wash affected area with soap and plenty of water. If irritation develops, call a physician.

### Ingestion:

DO NOT INDUCE VOMITING! Rinse mouth immediately with plenty of water. If victim is conscious and alert, give 1 glass of milk or water. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Call a physician, immediately

### Inhalation:

Remove from exposure. If breathing is difficult, administer artificial respiration (mouth-to-mouth) or oxygen as indicated. Call a physician immediately.

**Notes to Physicians:** None known.

## Section 5 – Fire Fighting

**Flammable Limits in Air (% by Volume):** LEL: 1.1  
UEL: 6.1

**Flash Point:** 90 ° F (PMCC)

### Extinguishing Media:

Use foam, carbon dioxide, or dry chemicals to extinguish fire. Water may be ineffective, but should be used to cool fire-exposed containers. Water spray can also be used to disperse vapors and to flush spills away from exposures.

### Fire Fighting Instructions:

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing when fighting fires. Use cold water spray to cool fire-exposed product.

### Unusual Fire and Explosion Hazards:

Vapors are heavier than air and may travel to a source of ignition and cause a flash back. Containers may explode upon exposure to excessive heat and fire situations fire.

### Known or Anticipated Hazardous Products of Combustion:

Combustion products may include carbon dioxide, carbon monoxide and irritating or toxic smoke and

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fumes.

## Section 6 – Accidental Release Measures

### Accidental Release Measures and Methods for Cleanup:

Dike with sand or earth to prevent spill from entering sewers and waterways. Remove all ignition sources. Keep up wind of spill containment area. Ventilate spill area. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Personal protective equipment should be used when cleaning up all spills. Styrene is on the CERCLA list of hazardous substances and spills of reportable quantities must be reported to the National Response Center (800-424-8802). The CERCLA Reportable Quantity (RQ) for Styrene is 1000 lb

## Section 7 – Handling and Storage

### Handling:

Product is flammable. Keep away from heat, sparks and flames. Keep containers closed when not in use. Use with adequate ventilation. Bond and ground containers for transfer of this product to prevent static sparks. Avoid contact with eyes and skin. Avoid breathing mists or vapors.

### Storage:

Store away from heat, sparks and flames and all ignition sources. Store in cool area with a maximum storage temperature of 75°F (24°C). Store away from oxidizers and peroxides. Keep containers out of direct sunlight. Outside or detached storage is preferable. No smoking in work areas. Work in well-ventilated area. Avoid copper or copper containing alloys for storage containers.

## Section 8 – Exposure Controls/Personal Protection

### Ventilation Requirements:

Local exhaust ventilation should be used to control the emissions of air contaminants. General dilution ventilation may assist with the reduction of air contaminant concentrations.

### Personal Protective Equipment:

#### Eye/Face:

Wear chemical safety glasses, goggles or face shields to prevent eye contact.

#### Skin:

Wear polyvinyl alcohol, Teflon or Viton gloves to prevent skin contact. Protective aprons may be necessary where employees may be splashed. Contaminated clothing should be removed and laundered before reuse.

#### Respiratory:

Respiratory equipment approved by NIOSH/MSHA for protection against organic vapors and mists is necessary to avoid inhalation of excessive air contaminants. The appropriate respirator selection depends

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on the type and magnitude of exposure (refer 29 CFR 1910.134 for appropriate NIOSH approved respirators and to the NIOSH Pocket Guide to Chemical Hazards, DHHS (NIOSH) Publication NO. 90-117 for equipment selection). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known or under any other circumstances where air purifying respirators may not provide adequate protection.

## Other Protective

### Clothing/Equipment:

Emergency eye wash stations and safety showers should be available in the work area.

## Section 9 – Physical/Chemical Properties

**Appearance:** Clear viscous liquid

**Boiling Point:** 290°F (143°C)

**Molecular/Chemical Formula:** N/A

**Evaporation Rate:** N/A

**Bulk Density:** N/A

**Freezing Point:** N/A

**Melting Point:** N/A

**Octanol/Water Partition Coefficient:** N/A

**Water/Oil Distribution Coefficient:** N/A

**Odor:** Sharp styrene odor

**Odor Threshold:** 0.2 ppm styrene

**Percent Volatile:** 40-45%

**pH Value:** N/A

**Physical State:** Liquid

**Reactivity in Water:** N/A

**Solubility in Water:** Insoluble

**Specific Gravity or Density (Water=1):** 1.1

**Vapor Density:** 3.6

**Vapor Pressure:** 6.1 mmHg@20°C

## Section 10 – Stability/Reactivity

### Stability:

Unstable, may polymerize at elevated temperatures

### Conditions to Avoid:

Heat, sparks and flames. Strong oxidizing agents.

### Incompatibility With Other Materials:

Reacts violently with polymerization catalysts such as light, ultraviolet light, heat, benzoyl peroxide, other peroxides, persulfates, nitrates, nitric acid and other strong oxidizers. Polymerization in closed containers can cause violent reactions.

### Hazardous Decomposition Products:

Carbon dioxide, carbon monoxide, acrid smoke and fumes

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## Hazardous Polymerization:

Will not occur

## Conditions to Avoid:

None known.

## Section 11 – Toxicological Information

VALUE	ANIMAL	ROUTES	COMPONENTS
5 g/kg	Rabbit	Dermal- LD <sub>50</sub>	Styrene
24 g/m <sup>3</sup> /4hr	Rat	Inhalation - LC <sub>50</sub>	Styrene
5 g/kg	Rat	Oral - LD <sub>50</sub>	Styrene

### Toxicological Information:

#### Product Based Information:

No toxicological information is available for the finished product.

#### Ingredient Based Information:

Rabbits given polyester resin in the eye developed moderate corneal injury, iritis and conjunctival injury with corneal vascularization. However, all eyes healed by day 21. (USS Toxicity Test Report No. 47-503).

A few embryotoxic effects have been shown in animal studies, but results are conflicting. Data on humans are inconclusive (WHO Envir Health Criteria 26-82, 1983).

Chromosomal aberrations in cultured peripheral lymphocytes occurring in workers at high concentrations have been reported (no change in workers at low levels (IARC Suppl. 4:229, 1982).

Styrene may cause changes in enzymes (decreased creatinine, while increasing blood urea nitrogen (BUN and SGPT Tox Appl, Pharm 75:346, 1984)

Styrene has been shown to cause probable hearing loss in rats exposed for at least six hours per day for three to thirteen weeks to 800 ppm of styrene in the air, as indicated by a rise in the auditory brainstem response threshold and loss of hair cells of the inner ear. No effects were observed in rats exposed to styrene at 200 ppm for 13 weeks. Based on animal studies and human experience, no significant risk of hearing loss is expected in occupationally exposed persons.

**Carcinogenicity:** IARC has reclassified styrene from a Group 3 substance to a Group 2B, now labeled as "Possibly Carcinogenic to Humans". The new classification is not based on any significant new evidence that styrene might be carcinogenic, but rather on a broadening of the definition for the Group 2B classification. The previous definition only classified a substance as a Group 2B if sufficient carcinogenic evidence existed in animal studies. The current definition accepts limited evidence from animal studies if it is coupled with supporting evidence from other relevant studies.

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**Possible target organs:** Skin and respiratory system (e.g., lungs)

## ***Additional Information If Applicable***

Preliminary results of a recent inhalation study indicated that mice exposed to styrene showed an increased incidence of lung tumors, however no dose response relationship was observed. The relevance of these findings is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

The American Conference of Governmental Industrial Hygienists (ACGIH) has adopted the listing of styrene as "A4-Not Classifiable as a Human Carcinogen." There is inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

## Section 12 – Ecological Information

### **Ecological Information:**

Sheepshead Minnow 96 hr - LC<sub>50</sub>: 9.1 mg/l (Styrene)

### ***Additional Information If Applicable***

## Section 13 – Disposal Considerations

**Disposal Considerations:** Dispose of in accordance with local, state and federal requirements. The product meets the RCRA criteria for ignitability D001. The RQ for styrene is 1000 lbs.

### ***Additional Information If Applicable***

## Section 14 – Transport Information

**Proper Shipping Name:** Resin Solution (Styrene)

**Hazard Class:** 3

**ID Number:** UN1866

**Packing Group:** III

### ***Additional Information If Applicable***

## Section 15 – Regulatory Information

### **U.S. Federal Regulations:**

Toxic Substances Control Act (TSCA) Inventory- Yes  
Superfund Amendments and Reauthorization Act (SARA 313)- Styrene  
Clean Air Act (Section 111) Volatile Organic Compound- Styrene  
Clean Air Act (Section 112) Statutory Air Pollutants- Styrene  
Clean Water Act (Section 311) Hazardous Substances- Styrene  
Clean Water Act (Section 307) Priority Pollutant- N/A

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## State Regulations:

California Proposition 65 List.

This product contains a chemical listed by the State of California to cause cancer and/or birth defects or other reproductive harm.

## International Regulations:

European Inventory (EINECS)- Unknown

Canadian Inventory (DSL)- Yes

## SARA Hazards:

**Acute:** Yes

**Chronic:** Yes

**Reactive:** Yes

**Fire:** Yes

**Pressure:** No

## ***Additional Information If Applicable***

## Section 16 – Other Information

### NFPA Codes:

**Health:** 2

**Flammability:** 3

**Reactivity:** 2

### HMIS Codes:

**Health:** 2

**Flammability:** 3

**Reactivity:** 2

### Other Information:

If you require additional information regarding any legal or regulatory requirements referred to in this MSDS, we suggest that you consult with an appropriate regulatory agency, or with a professional with expertise in this area.

This information is taken from sources or based upon data believed to be reliable; however, Aristech Acrylics LLC makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.

## ***Additional Information If Applicable***

Reason for MSDS Revision: Styrene RQ addition

This MSDS was prepared in accordance with the ANSI Z400.1 1993 Guideline for the Preparation of Material Safety Data Sheets.

### KEY

N/A= Not Applicable

MSHA=Mine Safety and Health Administration

NIOSH=National Institute of Occupational Safety and Health

SARA= Superfund Amendment and Reauthorization Act

CNS= Central Nervous System

ACGIH=American Conference of Governmental Industrial Hygienists

OSHA=Occupational Safety and Health Administration

PNOC=Particulates Not Otherwise Classifiable

TLV=Threshold Limit Value

PEL=Permissible Exposure Limit

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TWA=Time Weighted Average

STEL=Short Term Exposure Limit

CEIL=Ceiling Limit Value

For additional product information, please call 800-354-9858.