

## Material Safety Data Sheet

### Section 1 – Chemical Product and Company Identification

Product Name: GSP 1790A  
 Product Use: Epoxy Resin  
 Effective Date: 2/16/06

Manufactured by:  
 G.S. Polymers, Inc.  
 195 Arovista Ave.  
 Brea, CA 92821  
 (714) 672-0567 Fax: (714) 672-0987

In an emergency call CHEMTREC @ 800-424-9300

### Section 2 – Composition/Information on Ingredients

Hazardous Ingredients(s)	%(by wt.)	OSHA (ACGIH) TLV	CAS NO.
Epoxy Resin (Diglycidyl Ether of Bis-Phenol A)	50-75%	N/E	25068-38-6
Natural Wollastonite*	up to 50%	3 mg/m3 (respirable)	13983-17-0
Titanium Dioxide*	up to 1%	10 mg/m3 (respirable)	13463-67-7

\* Natural Wollastonite and Titanium Dioxide is considered nuisance dust in a respirable form and do not present a health hazardous in the wet or cured form. Airborne particulates created during cutting, sanding or grinding should be minimized through the use of good work practices (See Section 3 and Section 8)

### Section 3 – Hazards Identification

**Primary Route(s) of Entry:** Dermal

Warning! May cause allergic skin reactions. May cause irritation to the eyes or skin.

**Additional Hazards:**

Cutting or grinding of cured material may nuisance dust and may present a respiratory hazard. Avoid breathing dust.

**Read the entire MSDS for a more thorough evaluation of the hazards.**

### Section 4 – First Aid Measures

<b>Eyes:</b>	For eye contact, immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water.
<b>Skin:</b>	For skin contact, wash with large amounts of running water, and soap, if available, for 15 minutes. Remove contaminated clothing and shoes. Get immediate medical attention. Discard or decontaminate clothing before re-use and destroy contaminated shoes.
<b>Inhalation:</b>	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

<b>Ingestion:</b>	If swallowed, give at least 3-4 glasses of water but do not induce vomiting. If vomiting occurs, give water again. Do not give anything by mouth to an unconscious or convulsing person. Get medical attention. Have physician determine whether vomiting or stomach evacuation is necessary.
<b>Overexposure Effects:</b>	Irritation, sensitization and dermatitis.
<b>Medical Conditions Aggravated by Exposure:</b>	Allergy, eczema or skin conditions.
<b>Additional Information:</b>	Promptly remove wet contaminated non-impervious clothing. Wash before reuse.

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#### Section 5 – Fire Fighting Measures

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<b>Flash Point:</b>	490 F (254 C) Epoxy Resin; Closed Cup
<b>Extinguishing Media:</b>	Carbon Dioxide, foam, dry chemical, water spray.
<b>Fire Fighting Equipment:</b>	Use self-contained breathing apparatus.
<b>Fire and Explosion Hazards:</b>	Decomposition and combustion products may be toxic.

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#### Section 6 – Accidental Release Measures

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**For major spills call Chemtrec (800) 424-9300.**

**Spill or Leak Procedures:** Avoid all personal contact. Take up with absorbent material. Shovel into closable containers. Flush contaminated area with water.

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#### Section 7 – Handling and Storage

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**Handling Precautions:**

Avoid contact with eyes, skin and clothing. Avoid breathing vapor, mist or spray. Use only with good ventilation. Individuals should wash thoroughly after handling. For industrial use only.

**Storage:**

Store in cool, dry area in sealed containers. Keep containers closed to prevent moisture absorption and contamination.

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#### Section 8 – Exposure Controls/Personal Protection

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**Personal Protective**

<b>Equipment:</b>	Wear appropriate equipment to prevent eye or skin contact. Use of barrier cream recommended.
<b>Eye Protection:</b>	Wear splash resistant safety goggles.
<b>Skin Protection:</b>	Wear impervious gloves.
<b>Ventilation:</b>	Good general mechanical ventilation and local exhaust.
<b>Respirators:</b>	Organic chemical cartridge respirator, if needed.
<b>Hygienic Practices:</b>	Wash hands before eating, smoking or using toilet facilities. Do not smoke in any chemical handling and storage area. Food or beverages should not be consumed near where this product is stored.
<b>Special Precautions:</b>	Cutting or grinding of cured material may release nuisance dust. Use of mechanical ventilation with a dust mask should be used under these conditions to avoid dust inhalation.

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 Section 9 – Chemical and Physical Properties
 

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<b>Physical Form</b> .....	Viscous Liquid
<b>Color</b> .....	White to Beige
<b>Odor</b> .....	Slight
<b>Boiling Point</b> .....	>392 F (200 C)
<b>Decomposition Temperature</b> .....	>392 F (200 C)
<b>Viscosity</b> .....	Thick Paste
<b>Solubility in Water</b> .....	Slightly Soluable
<b>Specific Gravity</b> .....	Not Established
<b>Bulk Density</b> .....	Not Established
<b>Vapor Pressure</b> .....	Not Established

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 Section 10 – Stability and Reactivity
 

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<b>Stability:</b>	This is a stable material.
<b>Hazardous Polymerization:</b>	Will not occur.
<b>Incompatibilities:</b>	Strong oxidizing agents.
<b>Instability Conditions:</b>	Avoid strong acids or bases in bulk and elevated temperatures
<b>Decomposition Products:</b>	Carbon monoxide, carbon dioxide, aldehydes.

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 Section 11 – Toxicology Information
 

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## TOXICITY DATA FOR: Epoxy Resin

**Acute Toxicity:**

Oral LD50:	> 5000 mg/kg (Rat)
Dermal LD50:	> 6000 mg/kg (Rabbit)
Eye Effects:	Slight irritation (Rabbit)
Skin Effects:	Moderate irritation (Rabbit)
Teratogenicity:	No adverse effects on embryonic or fetal development were observed.

**Mutagenicity:**

Ames Test:	both positive and negative results
Hamster Bone Marrow Cytogenetics (in vivo):	negative
Mouse Spermatocytes Cytogenetics (in vivo):	negative
Micronucleus Test (in vivo):	negative
Mouse Dominant Lethal Test:	negative
Alkylation of DNA:	positive
Human Mononucleated WBC (in vitro):	negative
Host Mediated Assay:	negative

**Sub-Chronic:**

(Rat) No observable effect at highest level studied (1000 mg/kg/day for 28 days) in oral feeding study.

**Chronic Toxicity:**

**2-Year Dermal Study in Mice:** no treatment related effects.

**2-Year Skin Painting Studies:**

A C3HF/BD Mice:	no increased tumor incidence.
B C57BL/6BD Mice:	slight increase in epidermal localized carcinomas at high dose.
C C3H Mice:	no tumors.

Mice receiving skin applications of the Diglycidyl Ether of Bisphenol A or essentially identical resins for two years have yielded very limited evidence of weak carcinogenicity. The published report on this study concludes that this resin product “is not a systemic carcinogen when applied to the skin of CF-1 mice” and the tumor data “was of no

biological importance”. Based on all available data, IARC (International Agency for Research on Cancer) has concluded in 1988 that DGEBA is not classified as a carcinogen.

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#### Section 12 – Ecological Information

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ECOLOGICAL DATA FOR: Epoxy Resin

**Biodegradability:** (Modified Sturm method): ~12%

**Fish Toxicity:**

Rainbow Trout (96 hr): LC50 1.5 mg/l

Zebra Fish (96 hr): LC50 2.4 mg/l

**Invertebrate Toxicity:** Daphnia Toxicity (24 hr): EC50 3.6 mg/l.

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#### Section 13 – Disposal Considerations

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**Waste Disposal Method:** Dispose in accordance with federal, state and local regulations.

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#### Section 14 – Transportation Information

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**Department of Transportation:** Not Regulated

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#### Section 15 – Regulatory Information

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**US Federal Regulations:**

Occupational Safety and Health Act (OSHA): This product is considered to be a hazardous chemical under the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

**SARA Title III: Section 313: None**

TSCA Section 8(b) – Inventory Status: Chemical component listed on TSCA Inventory

TSCA Section 12(b) – Export Notification: This product contains chemicals which are regulated by TSCA 12(b) Regulation and it is required that proper export notification shall be sent to EPA prior to shipping out of the United States America.

CAS Number: 1675-54-3

Chemical Name: Bisphenol A Diglycidyl Ether

**State Regulations:**

**California Proposition 65:** To the best of our knowledge this product does not contain materials known to the State of California to cause cancer and/or birth and reproduction defects.

**New Jersey Right-to-Know:** The following is required composition information:

CAS Number: 25068-38-6

Chemical Name: Phenol, 4,4'-(1-methylethylidene) bis-, polymer with (chloromethyl)oxirane

**Pennsylvania Right-to-Know:** The following is required composition information:

CAS Number: 25068-38-6

Chemical Name: Phenol, 4,4'-(1-methylethylidene) bis-, polymer with (chloromethyl)oxirane

Common Name: Bisphenol A Epoxy Resin

Comment: Not on Pennsylvania Hazardous Substance List.



## Material Safety Data Sheet

### Section 1 – Chemical Product and Company Identification

Product Name: GSP 1790B  
 Product Use: Epoxy Hardener  
 Effective Date: 2/16/06

Manufactured by:  
 G.S. Polymers, Inc.  
 195 Arovista Ave.  
 Brea, CA 92821  
 (714) 672-0567 Fax: (714) 672-0987

In an emergency call CHEMTREC @ 800-424-9300

### Section 2 – Composition/Information on Ingredients

Hazardous Ingredients(s)	%(by wt.)	CAS NO.
Tetraethylenepentamine (TEPA)	20-50	112-57-2
Microcrystalline Silica*	30-65	14808-60-7
Silicon Dioxide*	0.2-5	7631-86-9

#### OSHA (ACGIH) EXPOSURE LIMITS

CAS#	TWA		STEL		CEILING	
	ppm	mg/m3	ppm	mg/m3	ppm	mg/m3
112-57-2	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)
14808-60-7	N/E (N/E)	10 (0.1)	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)
7631-86-9	N/A (N/E)	N/A 10	N/A (N/E)	N/A (N/E)	N/A (N/E)	N/A (N/E)

N/E Not Established. All values in ( ) are U.S. ACGIH (American Conf. of Gov. Indust. Hygienists)-TLV; All others are OSHA-PEL.

\* Microcrystalline Silica and Silicon Dioxide is only hazardous in a respirable (dust) form and do not present a health hazardous in the wet or cured form. Airborne particulates created during cutting, sanding or grinding should be minimized through the use of good work practices (See Section 3 and 8)

### Section 3 – Hazards Identification

**Routes of Exposure:** Ingestion, Skin Absorption, Inhalation

**Exposure Standards:** No standards established for the product. Maintain air contaminant concentrations in the workplace at the lowest feasible levels.

**Health Hazards:** Severe eye irritant, Severe skin irritant, Corrosive Liquid, Toxic (ANSI Z129.1 1988) by ingestion, skin absorption. May cause skin sensitization.

**Target Organs:** Eye, Skin, Respiratory System

**Signs and Symptoms of Exposure (Acute effects):**

Product vapor in low concentrations can cause lacrimation, conjunctivitis and corneal edema when absorbed into

the tissue of the eye from the atmosphere. Corneal edema may give rise to a perception of 'blue haze' or 'fog' around lights. The effect may cause blindness. Inhalation of vapors may cause irritation in or skin quickly causes severe irritation and pain and may cause burns, necrosis and permanent injury.

Inhalation of aerosols and mists may severely damage contacted tissue and produce scarring.

Product is absorbed through the skin and may cause malaise, discomfort, injury and death unless treated promptly.

**Signs and Symptoms of Exposure (Possible Longer Term Effects):**

Repeated and/or prolonged exposure may cause allergic reaction/sensitization.

Repeated and/or prolonged exposures may result in adverse respiratory effects (such as cough, tightness of chest or shortness of breath), adverse eye effects (such as conjunctivitis or corneal damage), adverse skin effects (such as rash, irritation or corrosion).

**Medical Condition Generally Aggravated by Exposure:**

Eye disease, Skin disorders and Allergies, Asthma, and Chronic respiratory disease (e.g. Bronchitis, Emphysema)

**Additional Hazards:**

Cutting or grinding of cured material may release microcrystalline silica (Quartz) and may present a chronic respiratory hazard. Exposure to silica dust may cause silicosis, cancer, autoimmune disease, tuberculosis or nephrotoxicity. See special precautions (Section 8).

Section 4 – First Aid Measures

<b>Eye Contact:</b>	Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Seek medical advice.
<b>Skin Contact:</b>	Remove product and immediately flush affected area with water for at least 15 minutes. Call a physician. Remove contaminated clothing and shoes. Destroy contaminated leather apparel. Cover the affected area with a sterile dressing or clean sheeting and transport for medical care. <b>DO NOT APPLY GREASES OR OINTMENTS.</b> Control shock, if present. Launder contaminated clothing prior to reuse.
<b>Inhalation:</b>	Move patient to fresh air. If breathing has stopped or is labored give assisted respiration (e.g. mouth-to-mouth). Supplemental oxygen may be indicated. Prevent aspiration of vomit. Turn victim's head to the side. Assure mucus does not obstruct airway. Call a physician
<b>Ingestion:</b>	In the event of ingestion, administer 3-4 glasses of milk or water. <b>DO NOT INDUCE VOMITTING.</b> Seek medical advice.

Section 5 – Fire Fighting Measures

<b>Flash Point:</b>	275 F (135 C) TEPA; Closed Cup
<b>Fire Hazard Classification:</b>	Class IIIB (OSHA/NFPA)
<b>Extinguishing Media:</b>	Ignition will give rise to a Class B fire. In case of large fire use water spray, alcohol foam. In case of small fire use carbon dioxide (CO <sub>2</sub> ), dry chemical, dry sand or limestone.
<b>Fire Fighting Procedures:</b>	A face shield should be worn. Firefighters should wear butyl rubber boots, gloves, and body suit and a self-contained breathing apparatus. Retain expended liquids from fire fighting for later disposal.
<b>Fire and Explosion Hazards:</b>	May generate toxic or irritating combustion products. Contact of liquid with skin must be prevented. Sudden reaction and fire may result if product is mixed with an oxidizing agent. May generate carbon monoxide gas. Personnel in vicinity and downwind should be evacuated.

Section 6 – Accidental Release Measures

**For major spills call Chemtrec (800) 424-9300.**

**Containment Techniques (Removal of ignition sources, diking etc.)**

Stop the leak, if possible. Reduce vapor spreading with a water spray. Shut off or remove all ignition sources. Construct a dike to prevent spreading (includes molten liquids until they freeze).

**Clean-up Procedures**

If recovery is not feasible, admix with dry soil, sand or non-reactive absorbent and place in an appropriate chemical waste container. Transfer to containers by suction, preparatory for later disposal. Place in metal containers for recovery or disposal. Flush area with water spray. Clean-up personnel must be equipped with self contained breathing apparatus and butyl rubber protective clothing. For large spills, recover spilled material with a vacuum truck.

**Other Emergency Advice**

Wear protective clothing, boots, gloves, and eye protection. At elevated temperatures a cartridge mask National Institute for Occupational Safety and Health (NIOSH) approved for ammonia may be appropriate.

**Section 7 – Handling and Storage****Handling Precautions:**

Avoid contact with skin or eyes. Avoid breathing of vapors. Handle in well ventilated work space. When handling, do not eat, drink, or smoke.

**Storage:**

Keep away from acids, oxidizers. Keep in cool, dry ventilated storage and in closed containers. Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Do not store in reactive metal containers.

**Other Precautions:**

Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations (e.g. OSHA). Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Cancer-causing nitrosamines could be formed.

**Section 8 – Exposure Controls/Personal Protection**

<b>Eye Protection:</b>	Full face shield with goggles underneath.
<b>Hand Protection:</b>	Neoprene rubber gloves. Impermeable gloves. Cuffed butyl rubber gloves. Nitrile rubber gloves.
<b>Respirators:</b>	Not required under normal conditions in a well-ventilated workplace. At elevated temperatures a cartridge mask National Institute for Occupational Safety and Health (NIOSH) approved for ammonia may be appropriate.
<b>Protective Clothing:</b>	Impervious clothing. Slick suit. Rubber boots. Full rubber suit (rain gear). Butyl or latex protective clothing.
<b>Engineering Controls:</b>	No specific controls needed.
<b>Work Practices:</b>	Provide readily accessible eye wash stations and safety showers. Wash at the end of each workshift and before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Discard contaminated leather articles. Launder or discard contaminated clothing.

**Special Precautions for Grinding, Sanding or Cutting Cured Product:**

Machine operations performed on cured product may release microcrystalline silica in the form of dust. Exposure to silica dust may cause silicosis, cancer, autoimmune disease, tuberculosis or nephrotoxicity. Respiratory protection meeting OSHA and ANSI standards must be worn if such operations are performed. Work environment should be properly cleaned after such operations to minimize lingering respiratory hazards.

Consult OSHA Hazard Communication Standard, 29 CFR Sections 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59 and 1928.21 and state and local worker or community “right-to-know” laws and regulations should be strictly followed. Your employees (and your customers in case of resale) by posting and other means of the hazards and the required OSHA precautions. Provide Training for your employees about the OSHA precautions.

See also American Society for Testing and Materials (ASTM) standard practice E 1132-99a, “Standard Practice for Health requirements relating to Occupational Exposure to Respirable Crystalline Silica.”

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 Section 9 – Chemical and Physical Properties
 

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<b>Physical Form</b> .....	Viscous Liquid
<b>Color</b> .....	Beige to Tan
<b>Odor</b> .....	Ammonical
<b>Boiling Point</b> .....	>356 F (180 C)
<b>Viscosity</b> .....	Thick Paste
<b>Solubility in Water</b> .....	Slightly Soluable
<b>Specific Gravity</b> .....	Not Established
<b>Bulk Density</b> .....	Not Established
<b>Vapor Pressure</b> .....	Not Established

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 Section 10 – Stability and Reactivity
 

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<b>Stability:</b>	This is a stable material.
<b>Incompatibilities:</b>	Mineral acids (i.e. sulfuric, phosphoric, etc.). Organic acids (i.e. acetic acid, citric acid, etc.) Oxidizing Agents (i.e. perchlorates, nitrates, etc.). Sodium or Calcium Hypochlorite. Caution! N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Nitrites, nitrosating agents. A reaction accompanied by large heat release occurs when the product is mixed with acids. Heat generated may be sufficient to cause vigorous boiling creating a hazard due to splashing or splattering of hot material.
<b>Decomposition Products:</b>	Nitrogen oxide can react with water vapors to form corrosive nitric acid (TLV=2 ppm). Carbon Monoxide in a fire. Carbon Dioxide in a fire. Ammonia when heated. Nitrogen Oxides in a fire. Irritating and toxic fumes at elevated temperatures. Nitric acid in a fire, nitroamines. The oxides of nitrogen gases (except nitrous oxide) emitted on decomposition are highly toxic.
<b>Hazardous Polymerization:</b>	Will not occur.

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 Section 11 – Toxicology Information
 

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## TOXICITY DATA FOR: Tetraethylenepentamine

**Acute Toxicity:**

Oral LD50:	2140 mg/kg (Rat)
Dermal LD50:	660 mg/kg (Rabbit)
Inhalation LC50:	No Data
Other Acute Effects:	Slight irritation (Rabbit)

**Irritation Effects:**

Corrosive to the skin of a rabbit.

**Chronic/Subchronic Toxicity:**

Sensitization has occurred in laboratory animals repeated exposures.

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 Section 12 – Ecological Information
 

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## ECOLOGICAL DATA FOR: Tetraethylenepentamine

No Data

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 Section 13 – Disposal Considerations
 

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**Waste Disposal Method:** Dispose in accordance with federal, state and local regulations.

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 Section 14 – Transportation Information
 

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**DOT Non-Bulk Shipping Name:** Tetraethylenepentamine mixture  
**DOT Hazard Class:** 8  
**DOT ID Number:** UN 2320  
**Packing Group:** III  
**ICAO/IATA Shipping Data:** Tetraethylenepentamine mixture // 8 // UN2320 // III // Shipment per 49 CFR 171.11

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 Section 15 – Regulatory Information
 

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**US Federal Regulations:****Toxic Substances Control Act (TSCA)**

All components are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

**OSHA Hazard Communication Standard (29CFR1910.1200) hazard classes:**

Corrosive. Sensitizer. Toxic by skin absorption.

**EPA SARA Title III Section 312 (40CFR370) hazard class**

Immediate Health Hazard. Delayed Health Hazard.

**EPA SARA Title III Section 313 (40CFR372) toxic chemicals above “de minimis” level are:**

None

**State Regulations:**

**California Prop. 65:** This product contains the chemicals listed below, which the state of California has found to cause cancer, birth defects or other reproductive harm.

**CAS NO. Component(s)**

14808-60-7 Silicon Dioxide (crystalline)

**New Jersey Right-to-Know:**

None

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 Section 16 – Other Information
 

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HMIS RATINGS:      Health              Flammability              Reactivity

                                 3                              1                              0

0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication as part of G.S. Polymers’ product safety program. It is not intended to constitute performance information concerning the product. No Express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

To determine applicability or effects of any law or regulation with respect to the product, user should consult his legal advisor or the appropriate government agency. G.S. Polymers does not undertake to furnish advice on such matters.

Prepared by Gerald Salladin

Title: Owner; Company: G.S. Polymers, Inc.; Rev Date: 2/16/06