

Material Safety Data Sheet

Section 1 – Chemical Product and Company Identification

Product Name: GSP 1710A
 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
Silicon Dioxide	30-50%	.05mg/m3 (respirable)	14808-60-7
Titanium Dioxide	up to 1%	10 mg/m3 (respirable)	13463-67-7

* Silicon Dioxide and Titanium Dioxide are only hazardous in a respirable (dust) form and do not present a health hazardous in the wet or cured form. However, see special warning where grinding, sanding and cutting of cured GSP 1710 A/B product is performed.

Section 3 – Hazards Identification

Primary Route(s) of Entry: Dermal

Warning! Causes allergic skin reactions. May cause irritation.

Additional Hazards:

Cutting or grinding of cured material may release microcrystalline silica (Quartz) and may present a chronic respiratory hazard. See special warning on supplemental addendum, avoid breathing dust -- lung damage (silicosis) may occur.

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

Section 4 – First Aid Measures

Eyes: 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.

Skin: 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.

Inhalation: If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion:	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.
Overexposure Effects:	Irritation, sensitization and dermatitis.
Medical Conditions Aggravated by Exposure:	Allergy, eczema or skin conditions.
Additional Information:	Promptly remove wet contaminated non-impervious clothing. Wash before reuse.

Section 5 – Fire Fighting Measures

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

Section 6 – Accidental Release Measures

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.

Section 7 – Handling and Storage

Handling Precautions:

Avoid contact with eyes, skin and clothing. Avoid breathing vapor, mist or spray. Use only with good ventilation. Promptly remove wet contaminated non-impervious clothing and wash before reuse. Destroy contaminated leather and absorbent shoes. 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.

Section 8 – Exposure Controls/Personal Protection

Personal Protective

Equipment:	Wear appropriate equipment to prevent eye or skin contact. Use of barrier cream recommended.
Eye Protection:	Wear splash resistant safety goggles.
Skin Protection:	Wear impervious gloves.
Ventilation:	Good general mechanical ventilation and local exhaust.
Respirators:	Organic chemical cartridge respirator, if needed.
Special Precaution:	Cutting or grinding of cured material may release microcrystalline silica (Quartz). See special warning on supplemental addendum, avoid breathing dust -- lung damage (silicosis) may occur.

 Section 9 – Chemical and Physical Properties

Physical Form	Viscous Liquid
Color	Black
Odor	Slight
Boiling Point	>392 F (200 C)
Decomposition Temperature	>392 F (200 C)
Viscosity	Thick Paste
Solubility in Water	Slightly Soluable
Specific Gravity	13.37
Bulk Density	13.13 lbs/gal
Vapor Pressure	Not Established

 Section 10 – Stability and Reactivity

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

 Section 11 – Toxicology Information

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.

Section 12 – Ecological Information

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.

Section 13 – Disposal Considerations

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

Section 14 – Transportation Information

Department of Transportation: Not Regulated

Section 15 – Regulatory Information

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: This product contains crystalline silica (respirable) which is known to the State of California to cause cancer.

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 1710B, 1710-1B, 1710-2B
 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/m ³	ppm	mg/m ³	ppm	mg/m ³
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	10	N/E	N/E	N/E	N/E
	(N/E)	(0.1)	(N/E)	(N/E)	(N/E)	(N/E)
7631-86-9	N/A	N/A	N/A	N/A	N/A	N/A
	(N/E)	10	(N/E)	(N/E)	(N/E)	(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.

* Silicon Dioxide is only hazardous in a respirable (dust) form and do not present a health hazardous in the wet or cured form. However, see special warning where grinding, sanding and cutting of cured GSP 1710 A/B product is performed.

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. See special warning on supplemental addendum, avoid breathing dust -- lung damage (silicosis) may occur.

Section 4 – First Aid Measures

Eye Contact:	Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Seek medical advice.
Skin Contact:	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. DO NOT APPLY GREASES OR OINTMENTS. Control shock, if present. Launder contaminated clothing prior to reuse.
Inhalation:	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
Ingestion:	In the event of ingestion, administer 3-4 glasses of milk or water. DO NOT INDUCE VOMITTING. Seek medical advice.

Section 5 – Fire Fighting Measures

Flash Point:	275 F (135 C) TEPA; Closed Cup
Fire Hazard Classification:	Class IIIB (OSHA/NFPA)
Extinguishing Media:	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 ₂), dry chemical, dry sand or limestone.
Fire Fighting Procedures:	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.
Fire and Explosion Hazards:	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

Eye Protection:	Full face shield with goggles underneath.
Hand Protection:	Neoprene rubber gloves. Impermeable gloves. Cuffed butyl rubber gloves. Nitrile rubber gloves.
Respirators:	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.
Protective Clothing:	Impervious clothing. Slick suit. Rubber boots. Full rubber suit (rain gear). Butyl or latex protective clothing.
Engineering Controls:	No specific controls needed.
Work Practices:	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:	Cutting or grinding of cured material may release microcrystalline silica (Quartz). See special warning on supplemental addendum, avoid breathing dust -- lung damage (silicosis) may occur.

 Section 9 – Chemical and Physical Properties

Physical Form	Viscous Liquid
Color	Amber to Tan
Odor	Ammonical
Boiling Point	>356 F (180 C)
Viscosity	Thick Paste
Solubility in Water	Slightly Soluable
Specific Gravity	12.95
Bulk Density	12.25 lbs/gal
Vapor Pressure	Not Established

 Section 10 – Stability and Reactivity

Stability:	This is a stable material.
Incompatibilities:	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.
Decomposition Products:	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.
Hazardous Polymerization:	Will not occur.

 Section 11 – Toxicology Information

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.

Section 12 – Ecological Information

ECOLOGICAL DATA FOR: Tetraethylenepentamine

No Data

Section 13 – Disposal Considerations

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

Section 14 – Transportation Information

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

Section 15 – Regulatory Information

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 Proposition 65: This product contains crystalline silica (respirable) which is known to the State of California to cause cancer.

New Jersey Right-to-Know:

None

