Technical Data Sheet

GSP 1717
Cover Letter

GSP 1717 is a modified epoxy resin with a low viscosity. It has a very rapid reaction rate when cured with aliphatic amine curing agents.

It was developed to have good physical strength, toughness, and wetting properties. As an adhesive, it has good bond strengths to a variety of substrates. GSP 1717 can be used in a variety of applications where low viscosity, rapid cures and adhesion is required.

GSP 1717 is designed to meet specific handling characteristics and cured properties. The Technical Data Sheet (TDS) reflects cured properties which are representative of the performance of this epoxy resin. There will be some differences in comparable values due to test methods used by other manufacturers. This epoxy resin was developed as a proposed offset for the discontinued Hexion EPON™ Resin 8121. See the Comparison Properties below.

Since the handling and cured properties are still being evaluated, the reported values are to be viewed as typical performance values. The responsibility for determining the overall compliance with the intended application is with the company manufacturing the final product. *G.S. Polymers Epoxy Resin GSP 1717 is a proposed offset to Hexion's EPON*™ 8121 Epoxy Resin.

Comparison Properties @25°C (77°F)

Property	GSP 1717 Epoxy Resin	EPON™ 8121
Density (lb/gal)	9.80	9.76
Viscosity (cps)	2500-3500	2700-3700
Color, Gardner	1 max	1 max
Epoxy Equivalent Weight (EEW)	300-325	300-325
Combining Equivalent Weight	133	130
Gel Time (100 grams), minutes with EpiCure 3273 Mix Ratio: 1:1 by volume	1'40sec	2
Shelf Life	12 months	12 months

195 Arovista Circle •Brea, CA 92821 • 714.672.0567 *phone*
714.672.0987 *fax* • www.gspolymers.com • sales@gspolymers.com

GSP 1717 Epoxy Resin

Description

GSP 1717 Epoxy Resin is a highly reactive multifunctional resin which contains both epoxide functionality and reactive unsaturation. This epoxy resin's key feature is its rapid reactivity. Naturally low in viscosity, with good physical properties and toughness as well as very good wetting ability, makes the use of GSP 1717 Epoxy Resin in a variety of applications. It is suited for high build coating applications, rapid setting adhesives and patching compounds as well as electrical encapsulants/potting systems.

Some of the features and benefits are:

Low Viscosity	Good physical properties
Contains no solvent; 100% Reactive	Very Good toughness
Rapid Reactivity	Good Wetting Characteristics

Applications

- High Build coatings
- Rapid setting adhesives & patching compounds
- Electrical encapsulant/potting systems

Storage: Being different then conventional epoxy resins, GSP 1717 Epoxy Resin will polymerize over temperature conditions in excess of 50°C (122°F). It is recommended the storage and mixing temperatures not exceed 50°C (122°F). Store in tightly sealed containers e.g. glass, lined steel, stainless steel or phenolic lined containers. Crystallization may occur with prolonged storage at -10°C (14°F). If this happens, gently warming at ambient temperatures will restore this resin.

GSP 1717 Epoxy Resin Properties:

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General information

GSP 1717 Epoxy Resin is developed to cure with aliphatic amines. This would include cycloaliphatic amines, polyethylamines e.g. triethlylenetetramine (TETA), tetraethylenepentamine (TEPA). These particular amine curing agents are low in viscosity and offer a high degree of reactivity.

A variety of applications specify user-friendly volumetric mix ratios e.g. 1:1, 2:1. One particular curing agent is Hexion's Epi-Cure 3273. When combined with GSP 1717 Epoxy Resin at a 1:1 by volume mix ratio, a rapid setting thermoset is formed.

NOTE: Amido amines, polyamides, aromatic amines, anhydrides, and mercaptan curing agents are not good curing agents. Inclusive are the catalytic curing agents e.g. dicyandiamide, tertiary amines. Trying to use these curing agents, results in poor physical properties.

Instructions for Use

- ***Read and understand the Materials Safety Data Sheet (MSDS) supplied with this product, before using.***
- ***Wear latex gloves and safety goggles.***
- ***Read and understand this Technical Data Sheet before using.***
- ***Working time will be depended on curing agent selected..***

1. Packaged in Separate Containers; Quarts, gallons, 5 gallon pails, etc.

Weigh components according to parts-by-weight or volume ratio into a non-reactive container (polyethylene, polypropylene, or metal de-rimmed can). Container should be about five times larger than the volume of the mixed material. Mix components thoroughly, preferably with a metal spatula, scraping the sides and bottom of container to incorporate all of the material.

Remove any air entrapped during mixing by placing the container of mixed material into a vacuum chamber. Under vacuum, the level of mixed material will rise and than drop with strong bubble breaking action. Do not allow the contents to rise over the top of the container. Release the vacuum. If working time allows, transfer material to a clean container. ***NOTE:*** *During transfer, do not scrape sides or bottom of the container used for mixing, as this may contain residual amounts of poorly mixed material and can leave a tacky surface or areas of uncured material in the part being cast.*

2. Packaged in Side-by-Side Tubes/Cartridges.

Mixing Instructions for side-by-side (SBS) tubes

(1) Wear latex gloves, and put on safety goggles
(2) Attach SBS tube to manual or pneumatic dispensing gun. Twist off white nozzle cap from SBS tube and purge small amount of material so there is an even flow for both components. Discard this amount properly.
(3) Attach static nozzle and purge a small amount of material. Discard this amount properly.
(4) SBS tube is ready to inject parts.

Curing Instructions

Because GSP 1717 Epoxy resin cures rapidly with polyamine curing agents, the system will cure to greater than 90 percent of ultimate properties within 24 hours at room temperature, with full cure within 5-7days. A heat/oven cure of 2-3 hours at 66°C (150°F) can be used instead of room temperature curing only after gelling at ambient temperatures for 1 hour minimum,.

GSP 1717 Epoxy Resin Properties with Hexion EpiCure 3273

Handling Properties, typical, 25°C (77°F)

Property	Value
Mix Ratio by Weight (1717:3273)	100A :84B
Mix Ratio by Volume	1 : 1
Pot Life	< 1.5 mins
Gel Time (50 gram mass)	1.5 - 2 mins
Viscosity mixed, cps	< 2500
Pencil hardness: 1 hour 24 hours	< 6B 4H
Full Cure	5-7 days

Physical Properties, typical, 25°C (77°F)

Property	Value
Durometer, Shore D	80
Color	Clear – Light-yellow
Tensile strength, psi	5750
Tensile elongation, %	< 3.5
Tensile modulus, psi	320,000
Izod Impact, ft•lb	60
Heat distortion temperature. °C (°F)	60 (140)
Water resistance, 24 hours	0.50
Xylene resistance, 24 hours	2.10

LAP SHEAR PROPERTIES, Aluminum to Aluminum, typical

Property	Value
1 hour @ 25°C (77°F)	145
4 hours @ 25°C (77°F)	1150
8 hours @ 25°C (77°F)	910

Read and follow the instructions in the Material Safety Data Sheets (MSDS) supplied with these materials.

Notice to Buyer: Exclusion of Warranties and Limitation of Liability

The following is made in lieu of all warranties, expressed or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risks and liability whatsoever in connection therewith. The foregoing may not be altered except by an agreement signed by officers/owners of G.S. Polymers, Inc.

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