

GSP 1502T-2

POLYURETHANE POTTING COMPOUND

Flame Retardant, Thermally Conductive Potting Compound

GENERAL DESCRIPTION

GSP 1502T-2 is a flame-retardant, thermally-conductive, flexible polyurethane potting system. The Part A and Part B components have a low mixed-viscosity that allows for good flow and substrate wetting during application. The cured polyurethane elastomer will meet or exceed UL 94 V-0 at 0.250 inches (6.35 mm). Additionally, **GSP 1502T-2** exhibits good physical strength, toughness, and electrical properties. This polyurethane system bonds very well to metal and plastic substrates and can be used in applications where adhesion is needed.

GSP 1502T-2 was specially formulated to minimize filler settling for extended shelf-life. The system contains no TDI or heavy metal catalysts (e.g. mercury, lead, etc.).

GSP 1502T-2 can be used in applications involving encapsulation or potting of electrical components such as printed circuit boards (PCB), ballast transformers and telecommunications. It is particularly ideal in applications where a low viscosity, rapid cure, thermal conductivity and flame-retardancy are required.

FEATURES

- Low Mixed Viscosity
- Flexible
- Fast curing
- Good flow and wet-out
- Good adhesion and thermal conductivity
- Meets UL 94 V-0, 0.250 inches (6.35 mm)

APPLICATIONS

- Printed circuit boards (PCBs)
- Switches
- Transformers
- Miscellaneous potting of electrical components

NOTICE TO USER

The following is made in lieu of all warranties, expressed or implied. It is the customer's responsibility to determine fitness of use for all GSP products by directly testing the materials first-hand for each application. Please fully evaluate the materials so as to convince yourself of appropriate and adequate performance. Before using, customer shall determine the suitability of the product for the intended use, and customer assumes all risks and liability whatsoever in connection therewith.

The only obligation of the seller or manufacturer 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. The foregoing may not be altered except by an agreement signed by officers/owners of G.S. Polymers, Inc.

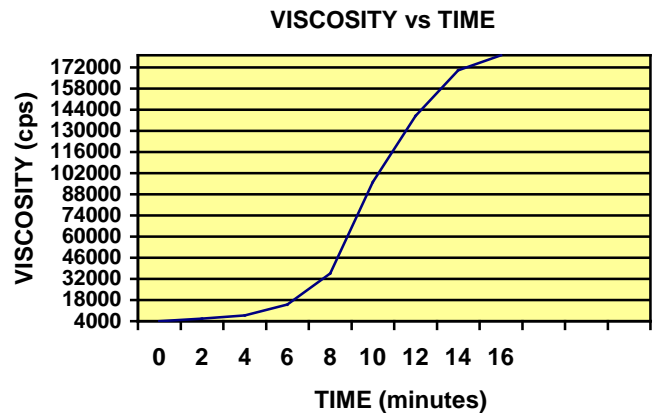
Prepared:5/18/2012 KZ; Revised: R3 9/27/2012 BN

COMPONENT AND HANDLING PROPERTIES, TYPICAL @ 25°C (77°F)

PROPERTY	GSP 1502T-2 PART A	GSP 1502T-2 PART B
Color	Amber	Off-White
Density, g/cc	1.23	1.52
Density (lb/gal)	10.3	12.7
Viscosity (cps) at 70°F (21°C)	150-250	6000 - 8000
Mix Ratio, by weight	15	100
Gel Time, 300g, minutes	10 - 20	
Fixture-Cure, minutes	60-90	
Recommended Full-Cure (1) Standard, 77°F (25°C) (2) Alternate, Gel R.T. plus 140-185°F (60-85°C)	5-7 days 1-3 hours	
Shelf Life*, months	6	6
* DOM (Date of Manufacturing)		

VISCOSITY vs. TIME PROFILE, TYPICAL @ 25°C (77°F)

TIME (MIN)	VISCOSITY (CPS)	TEMP °F (°C)
2	5600	84 (29)
4	7800	93 (34)
6	15,000	95 (35)
8	35,600	99 (37)
10	96,000	102 (39)
12	140,000	104 (40)
14	170,000	109 (43)
16	180,000	115 (46)

**PHYSICAL PROPERTIES, TYPICAL FOR THIS AND SIMILAR URETHANE SYSTEMS AT ROOM TEMP @ 25°C (77°F)**

PROPERTY	GSP 1502T-2
Color	Off-White
Shore A Hardness	88 +/- 5
Tensile Strength, psi	1,500
Tensile Elongation	< 115
24 hour Water Absorption, %	0.15
Dielectric Strength (v/mil)	1150
Dielectric Constant @ 100K Hz	6.0
Volume Resistivity, (ohm/cm)	7.1E ¹³
Thermal Conductivity (W/m ² K), min	0.60
Thermal Conductivity ((Btu-in)/(hr x ft ² x °F)), min	3.5
Flammability @ 0.250 inches (6.35 mm)	UL94 V-0

INSTRUCTIONS FOR USE

SIDE-BY-SIDE (SBS) CARTRIDGE:

GSP 1502T-2 is not available in Side-By-Side packaging because the parts-by-volume ratio of the system is incompatible with standard SBS cartridges. Contact GS Polymers technical department for system recommendations if your application requires a cartridgeable system.

TO MIX BY HAND:

Mix Ratio: Parts by Weight (pbw):15 parts GSP 1502T-2 Part A to 100 parts GSP 1502T-2 Part B

Pot-Life: Do not mix more than can be applied in 5 minutes. Gel time is about 10 - 20 minutes but will vary depending on the mass mixed and the ambient temperature.

Mixing: Portion out components according to the parts by weight (pbw) ratio into a non-reactive container (e.g. polyethylene, polypropylene, or metal de-rimmed can). Select a container about five times larger than the volume of material mixed to allow for expansion while de-airing under vacuum. Mix components very thoroughly, preferably with a metal spatula, scraping the sides and bottom of container to incorporate all material.

De-Air: Remove air bubbles entrapped while mixing by placing mixed material in a vacuum chamber. (Vacuum should be able to achieve 29 inHg.) Liquid level should rise and then fall with some bubbling. Break vacuum partially and reapply as necessary to avoid overflow. De-air material until bubbling is minimal. Do not leave material under vacuum longer than one minute as catalysts may be stripped from the system and effect curing.

Transfer and Application: If working time allows, pour mixed material into a clean container without further scraping the sides and bottom. (In case unmixed material is still present.) Discard the residual material left behind in the mix container. If working time does not allow transfer to a clean container, dispense material taking care to avoid further scraping material from the sides and bottom of the mix container. Apply mixed material to the work area immediately.

Containers: After using materials, blanket remaining components under nitrogen gas (N₂) and securely reseal the containers. This will reduce the likelihood of contamination from atmospheric moisture and extend shelf life.

CURING PROCEDURES:

Most properties (approx 90%) will develop after 48 hours of room temperature cure. Full properties develop over a period of 5 to 7 days at ambient temperature. Cure may be accelerated with the application of heat. To heat cure the system, allow product to gel at room temperature for one hour. Then apply moderate heat 60-85 °C (140-185° F) for 1 to 3 hours.

STORAGE:

Store both Part A and Part B components between 65°F /18°C – 86°F/30°C in a clean, dry area. If stored below 68°F/ 20°C, allow the material to reach room temperature in the closed/sealed container prior to use. Both components should be blanketed with nitrogen after use to extend shelf-life and minimize moisture contamination during storage.

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET (MSDS) PRIOR TO USING THIS PRODUCT.