

SM 2000-1

SILICONE-MODIFIED EPOXY POTTING COMPOUND

Heat-Resistant, Strong Adhesion, 25 Shore A Hardness

GENERAL DESCRIPTION

SM 2000-1 utilizes a novel hybrid chemistry producing a polymer with physical properties similar to both silicone and polyurethane. The system offers exceptional adhesion to metal and bonds to most substrates without need for primer.

Heat resistant, the cured system can withstand temperatures up to 150°C (302°F) and excursion as high as 176°C (~350°F) without losing elastomeric properties. Well-suited for potting applications, the A and B components mix to form a low to medium viscosity fully flowable liquid with a 10-minute pot-life. The system can be handled after 45 minutes of room temperature cure.

SM 2000-1 is an ideal candidate for general purpose elastomeric potting/encapsulant or sealant applications or other applications where silicone and polyurethanes are used. The compound offers greater heat resistance than most urethanes. And it offers better adhesion and physical properties than silicone without the cure-inhibition and migration issues common to silicone systems. **SM 2000-1** is particularly well-suited for applications where sensitive electronic components are subject to thermal cycling and need a stress accommodating polymer to absorb vibration or impact.

FEATURES

Excellent Adhesion
Excellent shock absorption
Heat Resistant to 150°C (302°F)
Flexible

APPLICATIONS

Printed circuit Boards
Transformers
Switches
Miscellaneous electronics encapsulating

COMPONENT PROPERTIES

PROPERTY	SM 2000-1 PART A	SM 2000-1 PART B
Density, g/cc	1.143	1.024
Specific Gravity	9.54	8.55
Shelf Life	4 Months	4 Months
Color	Off-White	Translucent Light-Yellow
Viscosity	Flowable	Flowable

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: 10/29/2009 KZ; Revised: R2 BN 3/29/2012

HANDLING PROPERTIES

PROPERTY	SM 2000-1
Mix Ratio by Weight, A:B	28 : 100
Mix Ratio by Volume, A:B	1 : 4
Density, g/cc	1.050
Specific Gravity	8.766
Pot Life	10 minutes
Gel Time (100gram mass)	15 minutes
Handling Time (Green Strength)	45 minutes at RT
Cure Time	7 Days at RT
Heat Cure Option	Allow to Gel at RT, then 150-185°F for 1-3 hrs

PHYSICAL PROPERTIES

PROPERTY	SM 2000-1
Hardness	25A +/- 5
Color	Off-White
Elongation, %	200+
Adhesion to Aluminum	Excellent
Operating Temperature	-65°F – 300°F+

INSTRUCTIONS FOR USE

SIDE-BY-SIDE (SBS) CARTRIDGE:

The recommended method of application for this product is with prepackaged, side-by-side (SBS) ratio tubes using a dispenser and a static mix nozzle. To ensure an accurate mix ratio when dispensing material from a SBS tube through a static mixer nozzle, follow the steps below:

1. Remove the nozzle tip/cap. Do not discard tip/cap unless all the material in SBS tube is to be used.
2. Extrude enough material until there is an even flow of material from both openings. Discard this material.
3. Attach the mix static nozzle. Extrude material until ~2-3 cm (~1 inch) of material has extruded. Discard this initially extruded material. Cartridge pistons will now be precisely aligned and material on ratio.
4. Apply material from the cartridge directly to the work area.
5. To preserve leftover material in the SBS tube after application, remove and discard the static mix nozzle.
6. Clean the tip/cap thoroughly to prevent cross contamination of the tip openings.
7. Reinsert or reattach tip/cap back onto the SBS tube.

TO MIX BY HAND:

Mix Ratio: Parts by Volume (pbv): 1 part SM 2000-1 Part A to 4 parts SM 2000-1 Part B

Mix Ratio: Parts by Weight (pbw): 28 parts SM 2000-1 Part A to 100 parts SM 2000-1 Part B

Pot-Life: Do not mix more than can be applied in 10 minutes. Gel time is about 15 minutes but will vary depending on the mass mixed and the ambient temperature.

Proportion out components according to the parts by volume (pbv) or 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.

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.

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.

CURING PROCEDURES:

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 66-85 °C (150-185° F) for 1 to 3 hours.

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