



Technical Bulletin

SYMPoxy 4445-284 A&B, 4445-803 A&B, and 4445-56 A&B

SEMI-THIXOTROPIC, THERMAL CONDUCTIVE, ROOM TEMPERATURE AND HEAT CURE SYSTEMS FOR ADHESIVE / SEALANT APPLICATIONS

DESCRIPTION:

Sympoxy 4445-284, 4445-803, and 4445-56 A&B are two component, 100% solids, rigid systems designed to give good adhesion and high thermal conductivity. These systems are identical to Sympoxy 4440 systems, but are less thixotropic and will have some flow when cured under low heat. These systems have low thermal expansion properties for metal to metal bonds. They can also be used in some blob applications, metal repair, and fixturing. All systems are easily spread and will not run at room temperature.

Sympoxy 4445-284 A&B	Fast, room cure, rigid, thermal resistant to 130°C.
Sympoxy 4445-803 A&B	Medium-fast, high impact strength, thermal resistant to 110°C.
Sympoxy 4445-56 A&B	Heat cure, heat resistant to 150°C, good impact resistance

PHYSICAL PROPERTIES:

	<u>4445-284 A&B</u>	<u>4445-803 A&B</u>	<u>4445-56 A&B</u>
Mix Ratio	100:10	100:10	100:7
Gel time 100 grams @25°C	30 min.	25-30 min.	4-5 hours
Hardness Shore D	90 D	82 D	90 D
Viscosity - mixed @25°C cps	----- semi-thixotropic -----		
Cure schedule (see curing procedure)			
@ 25°C	16 hrs.	16 hrs.	-----
@ 85°C	1 hr.	1 hr.	1 hr. + 3 hrs @150°C
Tensile Strength (psi)	10,500	9,500	11,000
Tensile Shear Strength (psi)	3,500	4,000	4,200
Peel Strength (pli)	3.4	5.6	6.2
Moisture Absorption % (24 hrs. @25°C)	0.10	0.22	0.10

ELECTRICAL PROPERTIES:

	<u>4445-284 A&B</u>	<u>4445-803 A&B</u>	<u>4445-56 A&B</u>
Thermal Conductivity (BTU/hr/ft ² /°F/in)	9.2	8.8	9.6
Thermal Expansion (10 ⁻⁶ /°C)	32	34	30
Thermal Shock Resistance °C	---	-35 to 65	-65 to 150
Dielectric Strength (volts/mil.)	450	550	420
Volume Resistivity (ohm-cm)			
@ 25°C	3.6 x 10 ¹⁵	8.0 x 10 ¹⁴	2.1 x 10 ¹⁶
@ 100°C	6.0 x 10 ¹⁰	1.8 x 10 ¹⁰	4.5 x 10 ¹³
@ 150°C	10 ⁸	10 ⁸	3.0 10 ¹¹

MATERIAL HANDLING, PROCESSING, & SAFETY NOTES

MIXING PROCEDURE:

Stir Part A thoroughly to re-disperse any clear resin on top. Mix, only when ready to use, by adding Part B to Part A and blending together thoroughly. Be sure to scrape and stir in all material sticking to the sides and bottom of the mixing container. Do not use paper containers or wooden mixing sticks. They may contain moisture. For best results, use plastic or coated containers, and metal or plastic sticks. None of the systems listed will foam in a 100 gram mass.

CURING PROCEDURE:

Sympoxy 4445-284 and 4445-803 cure 16 hrs. at room temperature or 2 hours @ 65°C. For thin sections cure 1 hour at 85°C. *Sympoxy 4445-56* will not cure at room temperature.

SURFACE PREPARATION TO PREVENT ADHESION:

To prevent adhesion to the mold, use a GREASE-IT release agent. The following are recommended: GREASE-IT II, GREASE-IT IV, GREASE-IT V, GREASE-IT WAX P, or GREASE-IT WAX LT, use GREASE-IT FDG when a Food & Drug grade release is required. For best results, apply in a few thin coats, drying between coats. Porous surfaces, i.e. wood, plaster, etc, must be sealed thoroughly before release is applied. Use multiple coats of a good coating, such as: a high grade lacquer or urethane lacquer.

SURFACE PREPARATION FOR ADHESION:

For applications where adhesion is desired, the surface must be cleaned, abraded and dried. Sandblasting and mechanical roughing are the preferred ways of abrading surfaces to be bonded. For added adhesion to metals, use Primer 200 and for added adhesion to plastic, use Primer 810. Make sure all surfaces are clean, dry, and free from moisture.

CLEAN UP:

Cured polymers are difficult to remove. It is best to clean tools and equipment immediately after use. For best results use Hapco's A-TAK.

STORAGE:

Polymer systems have a minimum shelf life of six months when unopened. Both components should be stored in a room temperature dry place. When not in use, containers should be kept tightly closed.

PRECAUTIONS:

CAUTION: The MSDS should be read thoroughly before using this product.

Skin or eye contact with polymers should be avoided. Clean housekeeping procedures are urged and the use of gloves and/or protective creams suggested. All polymers, as a general practice, should be used in well ventilated areas. Spot ventilation is most effective. Contaminated clothing should be removed immediately and the skin washed with soap and water or waterless skin cleaner. Should accidental eye contact occur, wash thoroughly with water and consult a physician.

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The information presented here is based on carefully conducted laboratory tests and is believed to be accurate. However, results cannot be guaranteed and it is suggested that customers confirm results under their conditions and in their applications before production use.

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