EP126 Master Bond Polymer System

Two part epoxy for bonding and sealing featuring very high temperature resistance

Key Features

- ✓ **Excellent glass transition temperature, +240°C**
- ✓ **Noteworthy bonding strength**
- ✓ **Outstanding chemical resistance**
- ✓ **Top notch machineablilty**

Product Description

Master Bond EP126 is a specialty type two part epoxy that excels in high temperature applications up to +600°F. It has an impressive glass transition temperature of around +240°C. EP126 has slightly different handling properties when compared to other epoxies, but ultimately, is easily processable. With this compound, Part A is a moderate viscosity liquid and Part B is a powder. First, Part A is heated to 150-160°F, and then appropriate amount of Part B, based on a forgiving 100 to 50 mix ratio by weight, is added and stirred. The mixed system is a malleable paste, with an exceedingly long open time, that can be easily applied to the substrates. The curing is straightforward; 3-4 hours at 300°F or 2-3 hours at 350°F. For optimum properties, post curing for 12-24 hours at 400-450°F is recommended.

EP126 bonds well to a wide variety of substrates, including metals, composites, glass, ceramics, rubbers and many plastics. Additionally, it is formulated as a toughened system allowing it to withstand rigorous thermal cycling. The epoxy system offers enhanced tensile lap shear strength, fine dimensional stability, strikingly high compressive strength along with low shrinkage upon curing. EP126 is a very good electrical insulator, especially as it retains highly insulative properties at elevated temperatures. Furthermore, it has superb chemical resistance to water, oils, acids, bases and many solvents. EP126 should be considered for the most demanding electronic aerospace, optical and OEM applications based on this solid performance profile.

Product Advantages

- Excellent long-term thermal stability
- Dimensionally stable and machineable
- 100% reactive—no solvents or other volatiles
- High adhesion to metallic and non-metallic substrates
- Robust physical strength profile especially in the compressive mode

Typical Properties

Tensile lap shear strength	
75°F, aluminum to aluminum	>2,800 psi
500°F, aluminum to aluminum	1,300-1,400 psi
500°F, after 1,000 hours at 500°F	1,100-1,200 psi
Tensile strength, 75°F	3,500-4,000 psi
Tensile modulus	
75°F	425,000-475,000 psi
500°F	200,000-250,000 psi
Flexural strength	
75°F	8,000-9,000 psi
500°F	2,500-3,000 psi
Compressive strength, 75°F	32,000-34,000 psi
Glass transition temperature	+240°C

Typical Properties cont'd

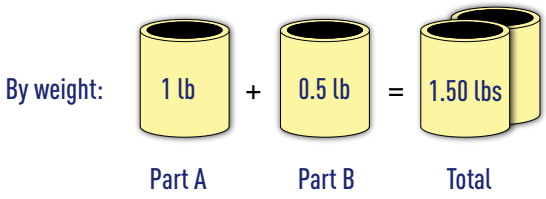
Dielectric constant, 60 Hz	
75°F	3.9
500°F	4.8
Dissipation factor, 60 Hz	
75°F	0.091
500°F	0.034
Volume resistivity	
75°F	$>10^{14}$ ohm-cm
500°F	$>10^{11}$ ohm-cm
Service temperature range	-80°F to +600°F [-62°C to +316°C]

Mixing and Curing

Mixing ratio, Parts A to B	100:50 by weight
Viscosity of Part A, 75°F	200,000-400,000 cps (thixotropic)
Viscosity of Part B, 75°F	powder
Viscosity of mixed compound, 75°F	250,000-500,000 cps (thixotropic)
Specific gravity, 75°F	1.29 gms/cc
Working life after mixing, 75°F; 100 gram batch	>5 days
Cure schedule	
300°F	3-4 hours
350°F	2-3 hours
Post cure	12-24 hours at 400-450°F
Shelf life at 75°F, in original, unopened containers	6 months

Preparation of Adhesive

EP126 is a two component epoxy system where Part A is a liquid and Part B is a powder. In order to mix, it is necessary to preheat Part A to 150-160°F in a non-critical 100:50 mix ratio by weight.



The two parts are then stirred together until a smooth, consistent, thixotropic paste is formed. This can then be applied to the substrates. As mentioned previously, the working life is greater than 5 days.

Preparation of Bonding Surfaces

All surfaces should be carefully cleaned, degreased and dried in order to obtain maximum bond strength. Many metal and plastic substrates should be mechanically roughened or chemically etched in order to maximize bond strength.

Adhesive Application

EP126 can be applied with a knife or spatula. Typical bond line thicknesses are in the range of 0.003-0.005 thousandths. Porous surfaces may require more epoxy to fill voids than their non-porous counterparts. Thicker bond lines will not increase the strength properties. The parts being bonded together are fixtured with just enough pressure to maintain intimate contact while curing. Care should be taken not to squeeze out the epoxy during fixturing.

Cure

The standard cure cycle for EP126 is 3-4 hours at 300°F or 2-3 hours at 350°F. To optimize properties, post curing for 12-24 hours at 400-450°F is recommended.

Packaging

Product is available in:

- 1/2 Pint kits
- Pint kits
- Quart kits
- Gallon kits
- 5 Gallon kits

Handling and Storage

All epoxy resins should be used with good ventilation and skin contact should be avoided. For safe handling details, please consult the product SDS. Optimum storage is at or below 75°F in closed containers. No special storage conditions are necessary. Containers should however be kept closed when not in use to avoid contamination. Cleanup of spills and equipment is readily achieved with aromatic or ketone solvents employing proper precautions of ventilation and flammability.

Certifications

RoHS COMPLIANT

Not to Be Used for Specification Purposes

The values contained herein are considered typical properties only and are not intended to be used as specification limits. For assistance in preparing specifications, please contact Master Bond technical support for further details.

Notice

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