EP30FL Master Bond Polymer System

Two component epoxy system for high performance potting, casting, bonding and sealing

Key Features

- ✓ Exceptionally low viscosity
- ✓ Good flexibility
- ✓ Cures at room temperature
- ✓ Cryogenic serviceability

Product Description

Master Bond EP30FL is a low viscosity, two component epoxy system for high performance potting and encapsulation as well as for bonding and sealing. It is formulated to cure at room temperature or more rapidly at elevated temperatures, with a four to one mix ratio by weight. The optimum cure schedule is 12-24 hours at ambient temperatures followed by 2-3 hours at 140-170°F. This compound is 100% reactive and does not contain any solvents or other volatiles. Most significantly, it cures remarkably more flexible than "typical" epoxies and is recommended in situations where resistance to mechanical shock and vibration as well as thermal shock and thermal cycling is needed. EP30FL can also be used as an adhesive or coating. It has very low shrinkage upon curing. It is serviceable over the exceptionally broad temperature range of 4K to +250°F, making it suitable for cryogenic applications. The system offers excellent adhesion to both similar and dissimilar materials including metals, glass, ceramics and many rubbers and plastics. It withstands a variety of chemicals including water, oil and fuels. The hardened compound is a superior electrical insulator. The color of Part A is amber and Part B is clear. EP30FL is widely used in the electronic, electro-optic, aerospace, specialty OEM and related industries.

Product Advantages

- Easy application, very low viscosity; well suited for potting and encapsulating
- Versatile cure schedules: ambient temperature cures or fast elevated temperature cures as required
- Superior thermal shock resistance and thermal cycling properties
- Excellent electrical insulation properties
- Superb impact resistance and mechanical shock resistance

Typical Properties

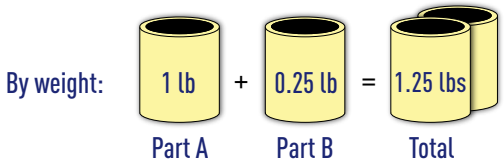
Tensile lap shear strength, aluminum to aluminum, 75°F	>1,500 psi
Tensile strength, 75°F	5,000-6,000 psi
Hardness, 75°F	25-40 Shore D
Volume resistivity, 75°F	$>10^{15}$ ohm-cm
Index of refraction, 75°F	1.57
Dielectric strength, 75°F (1/8 inch thick test specimen)	450 volts/mil
Dielectric constant, 75°F, 60 Hz	3.83
Dissipation factor, 75°F, 60 Hz	0.008
Service temperature range	4K to +250°F [4K to +121°C]

Mixing and Curing

Mixing ratio, Parts A to B	4:1 by weight
Viscosity of Part A, 75°F	700-1,200 cps
Viscosity of Part B, 75°F	60-120 cps
Working life after mixing, 75°F; 100 gram batch	30-45 minutes
Cure schedule options	
75°F	24-48 hours
200°F	1-2 hours
Optimum cure schedule	12-24 hours at 75°F plus 2-3 hours at 140-170°F
Shelf life at 75°F, in original, unopened containers	1 year

Preparation of Adhesive

Master Bond EP30FL is prepared by thoroughly mixing Part A with Part B in a four to one mix ratio by weight.



Mixing should be done slowly to avoid entrapping air. The low viscosity of the two components makes mixing easy. The working life of a mixed 100 gram batch is 30-45 minutes. It can be substantially lengthened by using shallower mixing vessels or mixing smaller size batches.

Preparation of Bonding Surfaces

All bonding surfaces should be carefully cleaned, degreased and dried to achieve maximum bond strengths. When bonding to certain metal surfaces, vulcanized rubbers, etc., chemical etching should be employed for optimal adhesion and environmental durability. Non-porous surfaces should be roughened with sandpaper or emery paper.

Adhesive Application

For bonding or sealing EP30FL can be conveniently applied with a brush or paint roller. Enough mixed adhesive should be applied to obtain an adhesive bond line thickness of 3-5 mils. Porous surfaces may require somewhat more adhesive to fill the voids than non-porous ones. Thicker glue lines do not increase the strength of a joint but do not necessarily give lower results as EP30FL does not contain any volatiles. The parts to be bonded should then be pressed together with just enough pressure to maintain intimate contact during cure without squeezing out the epoxy. EP30FL is readily pourable for potting and casting. When potting, it may be necessary to vacuum degas to remove bubbles.

Cure

EP30FL can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP30FL cures in 1-2 days. Faster cures can be realized at elevated temperatures or 1-2 hours at 200°F. The optimum cure schedule is 12-24 hours at ambient temperatures followed by 2-3 hours at 140-170°F. When potting, the thicker the section, the faster the rate of cure at room temperature. Remove any excess adhesive promptly before it hardens with a spatula. Then wipe with a rag and solvent such as MEK, toluene or acetone. The thinner the bond line or section thickness, the slower the rate of cure.

Packaging

Product is available in:

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

Specialty packaging is also available gun kits.

Handling and Storage

All epoxy systems 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

Master Bond believes the information on the data sheets is reliable and accurate as is technical advice provided by the company. Master Bond makes no warranties, expressed or implied, regarding the accuracy of the information, and assumes no liability regarding the handling and use of this product.