# EP37-3FLFAO Master Bond Polymer System

Two component epoxy compound for potting, bonding, sealing and coating

## **Key Features**

- ✓ Thermally conductive
- ✓ Electrically insulative
- ✓ High flexibility
- NASA low outgassing approved
- Cures at room or elevated temperatures
- ✓ Excellent flowability

### **Product Description**

Master Bond EP37-3FLFAO is a two component system for high performance potting, bonding, sealing and coating that is formulated to cure at room temperature or more rapidly at elevated temperatures. It has a convenient one to one mix ratio by weight or volume. It has an unusual blend of properties including high thermal conductivity, excellent electrical insulation properties, good physical strength and a high degree of flexibility. Once cured, the epoxy exhibits striking resistance to shock, vibration, impact and thermal cycling. It withstands many chemicals including water, oil and various solvents. It is a wonderful adhesive that forms strong, flexible bonds to a wide variety of substrates including metals, composites, ceramics and many rubbers and plastics. EP37-3FLFAO has low viscosity with excellent flow characteristics making it ideal as a thermally conductive potting epoxy. It is cryogenically serviceable over the wide temperature range of 4K to +250°F. Parts A and B are off-white in color. Master Bond EP37-3FLFAO is widely used in the electronic, electrical, computer, opto-electronic, aerospace and specialty OEM industries where electrical insulation and heat transfer are

required. The uniqueness of EP37-3FLFAO lies in the fact that this thermally conductive system retains a high level of flexibility while having the desirable physical characteristics inherent in epoxies. EP37-3FLFAO has been certified by NASA as a low outgassing epoxy.

#### **Product Advantages**

- Convenient mixing: easy to use, non-critical one to one mix ratio by weight or volume
- High thermal conductivity with excellent electrical insulation properties
- High bond strength to a wide variety of substrates
- Low viscosity with excellent flowability; ideal for potting and casting
- Resists rigorous thermal cycling, mechanical and thermal shocks
- Good overall physical strength properties and chemical resistance
- Cryogenically serviceable down to 4K
- Long working life

## **Typical Properties**

Tensile lap shear strength, aluminum to aluminum, 75°F	>750 psi
T-peel strength, 75°F	>10 pli
Tensile strength, 75°F	>4,000 psi
Hardness, 75°F	35-45 Shore D
Thermal conductivity, 75°F	9-10 BTU•in/ft²•hr•°F [1.30-1.44 W/(m•K)]
Coefficient of thermal expansion, 75°F	60-65 x 10 <sup>-6</sup> in/in/°C
Volume resistivity, 75°F	>10¹⁵ ohm-cm
Dielectric constant, 75°F, 60Hz	4.9
Dielectric strength, 75°F ( $\frac{1}{8}$ inch thick test specimen)	450 volts/mil
Service temperature range	4K to +250°F [4K to +121°C]

### **Mixing and Curing**

9	Shelf life at 75°F, in original, unopened containers	6 months
	Mixing ratio, Part A to B	1:1 by weight or volume
`	Viscosity of Part A, 75°F	6,000-11,000 cps
`	Viscosity of Part B, 75°F	7,000-12,000 cps
١	Working life after mixing, 75°F, 100 gram batch	75-120 minutes
C	Cure schedule options	
	75°F	48-72 hours
	200°F	2-3 hours

#### **Preparation of Adhesive**

Master Bond EP37-3FLFAO is prepared for use by thoroughly mixing Part A with Part B in a one to one mix ratio by weight or volume. The working life of a 100 gram batch is approximately 75-120 minutes.



#### **Preparation of Bonding Surfaces**

All bonding surfaces should be carefully cleaned, degreased and dried to obtain maximum bond strength. For optimal performance when bonding to metal surfaces, chemical etching or aggressive roughening should be employed.

## **Adhesive Application**

Master Bond EP37-3FLFAO can be conveniently applied with a brush or paint roller. Enough mixed adhesive should be applied to obtain an adhesive bond line thickness of 2-5 mils. Porous surfaces may require 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 EP37-3FLFAO 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. Care should be taken not to squeeze out the adhesive during fixturing. In casting applications, it may be necessary to vacuum degas in order to remove the relatively few air bubbles that may have been formed when mixing.

### Cure

Master Bond EP37-3FLFAO can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP37-3FLFAO cures within 2-3 days. Faster cures can be realized at elevated temperatures, e.g. 2-3 hours at 200°F. To optimize its properties, the recommended cure schedule for EP37-3FLFAO is overnight at room temperature, followed by a post cure at 200°F for 1-2 hours. 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 thicker the section of epoxy, the faster the rate of cure when curing at room temperature.

## Packaging

Product is available in:

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

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Specialty packaging also available in premixed and frozen syringes.

#### **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 MSDS. 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





## 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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