EP75-1 Master Bond Polymer System

Two component, graphite conductive epoxy system for bonding, sealing, coating

Key Features

- ✓ Cures at room temperature
- ✓ Non magnetic; graphite filled
- ✓ Good electrical conductivity
- ✓ Withstands 1,000 hours 85°C/85% RH

Product Description

Master Bond EP75-1 is a two component, graphite filled, electrically conductive epoxy for high performance bonding, sealing and coating. The mix ratio of the EP75-1 system is 100 to 15 by weight. It can cure at room temperature or more rapidly at elevated temperatures. The optimum cure schedule is overnight at 75°F followed by 1-2 hours at 150-200°F. The volume resistivity of EP75-1 is 50-100 ohm-cm placing it in the realm of applications involving static dissipation and for RFI/EMI shielding purposes. The graphite filler confers non-magnetic properties as well as a modicum of lubricity to the system. In fact, EP75-1 is a material of choice when the requirement is for a non-metallic electrically conductive epoxy.

EP75-1 contains no solvents and has a paste-like consistency after mixing. It bonds well to a wide variety of substrates including metals, composites, ceramics, glass and many rubbers and plastics. It has reputable lap shear strength of over 1,400 psi along with worthy dimensional stability. It has good chemical resistance to water, oils, acids and bases. Its service temperature range is -60°F to +250°F. It can be used for electronic, aerospace, semiconductor, medical, fiber-optic, specialty OEM and related applications where a cost effective system for dissipating static electricity or EMI/RFI shielding, among the other properties mentioned above, might be needed.

Product Advantages

- Versatile cure schedules
- Well suited for shielding and static dissipation
- Non-magnetic
- Good lubricity
- Outstanding dimensional stability

Typical Properties

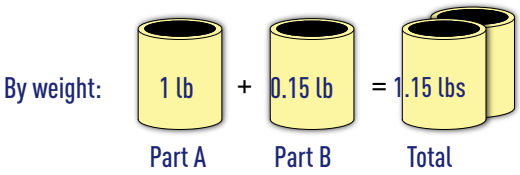
Tensile lap shear strength, aluminum to aluminum, 75°F	1,100-1,300 psi
Tensile strength, 75°F	5,000-6,000 psi
Tensile modulus, 75°F	300,000-350,000 psi
Hardness, 75°F	75-85 Shore D
Hardness after 1,000 hours 85°C/85% RH	85 Shore D
Coefficient of thermal expansion, 75°F	30-35 x 10^{-6} in/in/°C
Volume resistivity, 75°F	50-100 ohm-cm
Service temperature range	-60°F to +250°F [-51°C to +121°C]

Mixing and Curing

Mixing ratio, Part A to B	100:15
Viscosity of Part A, 75°F	paste
Viscosity of Part B, 75°F	200-500 cps
Working life after mixing, 75°F; 100 gram batch	30-60 minutes
Cure schedule options	
75°F	48-72 hours
150-200°F	2-3 hours
Optimum cure schedule	overnight at room temperature plus 1-2 hours at 150-200°F
Shelf life at 75°F, in original unopened containers	3 months minimum, 6 months maximum

Preparation of Adhesive

Master Bond EP75-1 is prepared by thoroughly mixing Part A with Part B in a 100:15 mix ratio by weight. Part A must be stirred individually prior to mixing. Mixing should be done slowly to avoid entrapping air.



Because of the 100:15 mix ratio of EP75-1, special care should be paid when mixing the A and B Parts together to ensure Part B is thoroughly distributed throughout Part A. The working life of a 100 gram batch is approximately 30-60 minutes. It can be 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. Non-porous or smooth surfaces should be roughened with sandpaper or mechanically abraded, to achieve maximum bond strength. When bonding to metal surfaces, chemical etching may be employed when the bonded joints are to exhibit optimal environmental durability.

Adhesive Application

Master Bond EP75-1 can be conveniently applied with a spatula, knife, or similar implement. Enough mixed adhesive should be applied to obtain a final adhesive bond line thickness of 1-4 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 inferior results. EP75-1 contains a limited amount of volatiles for ease of dispensation. The system is a paste and can be made more flowable by adding 5-10% by weight of an appropriate solvent such as acetone or MEK. The parts to be bonded should then be pressed together with just enough pressure to maintain intimate contact during cure. When used as a coating, thicknesses of 0.001-0.003 inches are more than adequate.

Cure

Master Bond EP75-1 can be cured at room temperature or at elevated temperatures as desired. At room temperature it cures in 48-72 hours. Faster cures can be realized at elevated temperatures, e.g., 2-3 hours at 200°F. Remove excess adhesive promptly before it hardens with a spatula. Then wipe with a rag and solvent such as acetone. The thinner the layer of epoxy, the slower the rate of cure. EP75-1 does not reach its ultimate electrical properties, nor its full strength, until it is completely cured.

Packaging

Product is available in:

- Glass jars
- Pint kits
- Quart kits
- 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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