EP30Med Master Bond Polymer System

Low viscosity, two component epoxy system

Key Features

- ✓ **Biocompatible as per USP Class VI testing**
- ✓ **Passes ISO 10993-5 for cytotoxicity**
- ✓ **Meets certification for indirect contact with food**
- ✓ **Resistant to chemical sterilants**
- ✓ **Optically clear**
- ✓ **Withstands 1,000 hours 85°C/85% RH**

Product Description

Master Bond EP30Med is a two component, optically clear, low viscosity epoxy resin system for high performance bonding, sealing, coating, and encapsulating. It is formulated to cure readily at room temperature or more quickly at elevated temperatures. It has a four to one mix ratio by weight and contains no solvents or diluents. EP30Med produces high strength, rigid bonds which are very resistant to chemicals including water, oils and many organic solvents, as well as cold sterilants, EtO and gamma radiation. It is serviceable over the wide temperature range of -60°F to +250°F. It bonds well to a wide variety of substrates including metals, glass, ceramics, wood and many plastics. EP30Med has exceptionally low linear shrinkage upon cure. The cured compound is also an outstanding electrical insulator. The combination of these properties makes this system well suited for encapsulating and potting applications. Most importantly, EP30Med meets USP Class VI specifications, making it ideal for a variety of uses in medical devices. EP30Med also meets FDA requirements for indirect food contact as per FDA CFR 175.105. To optimize the properties and to attain desired biocompatibility, the recommended cure schedule is overnight at room temperature, followed by 1-2 hours at 150-200°F.

Product Advantages

- Easy mixing: four to one by weight
- Convenient application: low viscosity; only contact pressure required for cure
- Versatile cure schedules: room temperature curing, or faster at elevated temperatures
- Forms high strength, rigid bonds to a wide variety of substrates
- Exceptionally low shrinkage

Typical Properties

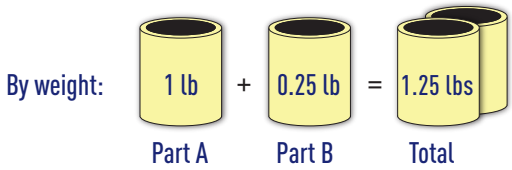
Tensile lap shear strength, aluminum to aluminum, 75°F	2,600-2,800 psi
Tensile strength, 75°F	8,000-9,000 psi
Tensile modulus, 75°F	300,000-350,000 psi
Hardness, 75°F	75-85 Shore D
Hardness after 1,000 hours 85°C/85% RH	85 Shore D
Volume resistivity, 75°F	$>10^{14}$ ohm-cm
Dielectric strength, 75°F (1/8 inch thick test specimen)	440 volts/mil
Dielectric constant, 75°F, 60 Hz	3.6
Service temperature range	-60°F to +250°F [-51°C to +121°C]

Mixing and Curing

Shelf life at 75°F, in original, unopened containers	6 months
Mixing ratio, Parts A to B	4:1 by weight
Viscosity of Part A, 75°F	900-1,500 cps
Viscosity of Part B, 75°F	280-500 cps
Working life after mixing, 75°F; 100 gram batch	30-40 minutes
Cure schedule options	
75°F	24-48 hours
200°F	2-3 hours

Preparation of Adhesive

Master Bond EP30Med 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 approximately 30-40 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 for obtaining maximum bond strengths. Also, when bonding to certain metal surfaces chemical etching should be employed for optimal adhesion and environmental durability. Non-porous surfaces should be roughened with sandpaper or emery paper for hard materials.

Adhesive Application

EP30Med can be conveniently applied with a brush, paint roller or syringe. 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 the EP30Med adhesive system does not contain any volatiles. The parts to be bonded should then be pressed together with just enough pressure to obtain and maintain intimate contact during cure. Care should be taken not to squeeze out 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

EP30Med can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP30Med develops maximum bond strength within 24-48 hours. Faster cures can be realized at elevated temperatures, e.g., 2-3 hours at 200°F. To optimize the properties and to attain desired biocompatibility, the recommended cure schedule is overnight at room temperature, followed by 1-2 hours at 150-200°F. 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 in FlexiPak™, gun kits and premixed & 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 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

USP Class VI

ISO 10993-5

FDA CFR 175.105

RoHS COMPLIANT

85°C/85%RH

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.