EP30HT Master Bond Polymer System

Two component epoxy system for bonding, sealing, coating and potting featuring optical clarity and high temperature resistance

Key Features

- ✓ Easy to use
- ✓ Superb physical strength properties
- ✓ Outstanding electrical insulation values
- ✓ Excellent structural adhesive

Product Description

Master Bond EP30HT is a moderate viscosity, two component epoxy system highlighted by high temperature resistance and optical clarity. This system has a non-critical four to one mix ratio by weight. The system cures easily in 24-48 hours at room temperature and more rapidly at elevated temperatures; 150-200°F in 2-3 hours. The optimum cure is overnight at room temperature followed by 2-3 hours at 150-200°F. EP30HT is highly structural; it's rigid without being brittle. It has exceptional dimensional stability and low shrinkage upon curing.

Most notably, EP30HT has a robust physical strength profile, especially tensile, tensile lap shear and compressive strengths, among others. Its electrical insulation values also are impressive and it is a good fit for smaller potting and encapsulation applications. It bonds well to a wide variety of substrates including metals, composites, glass, ceramics and many rubbers and plastics. EP30HT is highly resistant to water, oils, fuels, acids, bases and many solvents.

EP30HT can be used for indirect food contact applications as per the 175.105 FDA specification. Both Parts A and B are optically clear. Its temperature range is from -60°F to +400°F. EP30HT has a highly attractive array of properties upon curing, and that allows it to be a desirable candidate for applications in aerospace, electronic, optical, fiber-optic and specialty OEM industries, among others.

Product Advantages

- Convenient handling and processing
- High mechanical strength, excellent structural adhesive
- Superb optical clarity, high light transmission properties
- Superior chemical and temperature resistance
- Forms dimensionally stable, rigid bonds
- Meets FDA 175.105 requirements for indirect food applications

Typical Properties

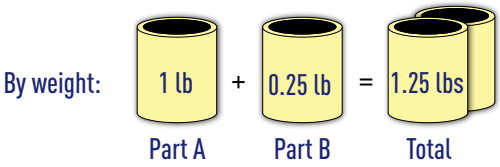
Tensile lap shear strength, aluminum to aluminum, 75°F	2,800-3,000 psi
Tensile strength, 75°F	10,000-11,000 psi
Compressive strength, 75°F	12,000-14,000 psi
Hardness, 75°F	80-90 Shore D
Coefficient of thermal expansion, 75°F	40-45 x 10^{-6} in/in/°C
Dielectric strength, 75°F	440 volts/mil
Volume resistivity, 75°F	>10^{15} ohm-cm
Dielectric constant, 75°F, 60Hz	3.5
Refractive index, 75°F	1.54
Service temperature range	-60°F to +400°F [-51°C to +204°C]

Mixing and Curing

Mixing ratio, Parts A to B	4:1 by weight
Viscosity, Part A, 75°F	55,000-110,000 cps
Viscosity, Part B, 75°F	250-500 cps
Working life after mixing, 75°F; 100 gram batch	25-40 minutes
Cure schedule options	
75°F	24-48 hours
200°F	2-3 hours
Optimum cure schedule	Overnight at 75°F, followed by 2-3 hours at 150-200°F
Shelf life at 75°F, in original unopened containers	1 year

Preparation of Adhesive

Master Bond EP30HT 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 lower viscosity of the two components makes mixing easy. The working life of a mixed 100 gram batch is approximately 25-40 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 to obtain maximum bond strength. When bonding to metal surfaces or other substrates, chemical etching or mechanical abrading should be employed so that the bonded joints exhibit optimal properties. In fact, most substrates should be roughened with sandpaper, emery paper or mechanically abraded to maximize adhesion.

Application and Assembly

Master Bond EP30HT can be conveniently applied with a spatula, knife, trowel, brush, paint roller, etc. Enough mixed adhesive should be applied to obtain a final adhesive bond line thickness of 3-5 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 the EP30HT system 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 EP30HT can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP30HT cures within 24-48 hours. Faster cures can be realized at elevated temperatures, e.g. 2-3 hours at 200°F. An optimum cure schedule is overnight at room temperature, followed by 2-3 hours at 150-200°F. Remove 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 section of epoxy, 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 gun 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

FDA

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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