EP30-2 Master Bond Polymer System

Two component, room temperature curing epoxy system for bonding, sealing, coating and encapsulation featuring a wide range of desirable properties

Key Features

- ✓ Extremely optically clear
- ✓ Superb physical strength properties
- ✓ Meets NASA low outgassing specifications
- ✓ Cryogenic serviceability
- ✓ Outstanding electrical properties
- ✓ Withstands 1,000 hours 85°C/85% RH

Product Description

Master Bond EP30-2 is a lower viscosity, two component epoxy system combining a number of highly desirable attributes. It is easily processed and has a non-critical ten to one mix ratio by weight. EP30-2 cures readily in 24-48 hours at room temperature or more rapidly at elevated temperatures, e.g. 2-3 hours at 150-200°F. The optimum cure is overnight at room temperature followed by 2-3 hours at 150-200°F. This epoxy flows smoothly and evenly after mixing, and is easily applied as an adhesive, coating or potting material.

EP30-2 has great optical clarity. Its physical strength profile, especially tensile, tensile lap shear and compressive strength, among others is most impressive. It is a terrific electrical insulator and is well suited for smaller potting and encapsulation applications. It is a highly structural system, that is to say it is rigid without being brittle. It is very dimensionally stable with low shrinkage upon curing.

EP30-2 is a superior adhesive that bonds well to a wide variety of substrates including metals, composites, glass, ceramics and many rubbers and plastics. EP30-2 is highly resistant to water, oils, fuels, acids, bases and many solvents. EP30-2 also has been used successfully in a number of cryogenic applications. Its service temperature range is from 4K to +300°F. It passes NASA low outgassing specifications. This exceptionally versatile system can be used in a variety of applications in aerospace, electronic, optical and specialty OEM industries, especially when optical clarity and low outgassing are important criteria.

Product Advantages

- Convenient handling and processing
- Favorable physical strength profile
- Compelling optical clarity and light transmission
- Very low shrinkage upon curing
- A “go-to” material for small potting and encapsulation applications

Typical Properties

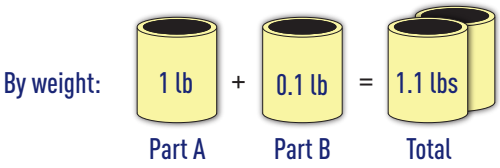
Tensile lap shear strength, aluminum to aluminum, 75°F	3,000-3,200 psi
Tensile strength, 75°F	10,000-11,000 psi
Compressive strength, 75°F	14,000-15,000 psi
Hardness, 75°F	80-90 Shore D
Hardness after 1,000 hours 85°C/85% RH	90 Shore D
Coefficient of thermal expansion, 75°F	40-45 x 10^{-6} in/in/°C
Dielectric 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	1.55
Service temperature range	4K to +300°F [4K to +149°C]

Mixing and Curing

Mixing ratio, Parts A to B	10:1 by weight
Viscosity, Part A, 75°F	10,000-16,000 cps
Viscosity, Part B, 75°F	10-35 cps
Working life after mixing, 75°F; 100 gram batch	20-40 minutes
Specific gravity	0.98
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 in cans, 6 months in syringes

Preparation of Adhesive

Master Bond EP30-2 is prepared by thoroughly mixing Part A with Part B in a ten 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 20-40 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 EP30-2 can be conveniently applied with a syringe, 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 EP30-2 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 and potting 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 EP30-2 can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP30-2 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

NASA Low Outgassing

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

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