

EP30-2LB Master Bond Polymer System

Two component, room temperature curing, optically clear epoxy for bonding, sealing, coating and encapsulation. Formulated to have special optical properties

Key Features

- ✓ Transmits well from 450-900 nm and above
- ✓ Blocks UV light (200-400 nm)
- ✓ Good structural adhesive
- ✓ Excellent electrical insulator

Product Description

Master Bond EP30-2LB is an optically clear epoxy that does not permit UV light transmission. EP30-2LB is a user friendly system that has a non-critical ten to one mix ratio by weight. EP30-2LB 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.

The most special feature of EP30-2LB is its optical transmission profile. As mentioned above it blocks UV light from 200 nm to about 400 nm and transmits well from 450-900 nm and above (Please see Figure 1). EP30-2LB has a number of other appealing attributes. It has excellent physical strength properties and is a strong and reliable adhesive. It bonds well to a wide variety of substrates including metals, composites, glass, ceramics and many rubbers and plastics. Electrically, it is an excellent insulator.

It is very dimensionally stable and has low shrinkage upon curing. EP30-2LB is highly resistant to water, oils, fuels, acids, bases and many solvents. Upon mixing, it is optically clear with a slight amber tint. The service temperature range is -80°F to +300°F. EP30-2LB can be used in optical applications where light transmission between visible and near IR is needed but blocking out UV light is an important requirement.

Product Advantages

- Convenient handling and processing
- Favorable physical strength profile
- Machineable
- Well suited for small electronic encapsulations
- Special optical transmission blocks UV light; allows visible light to transmit
- Passes NASA low outgassing tests

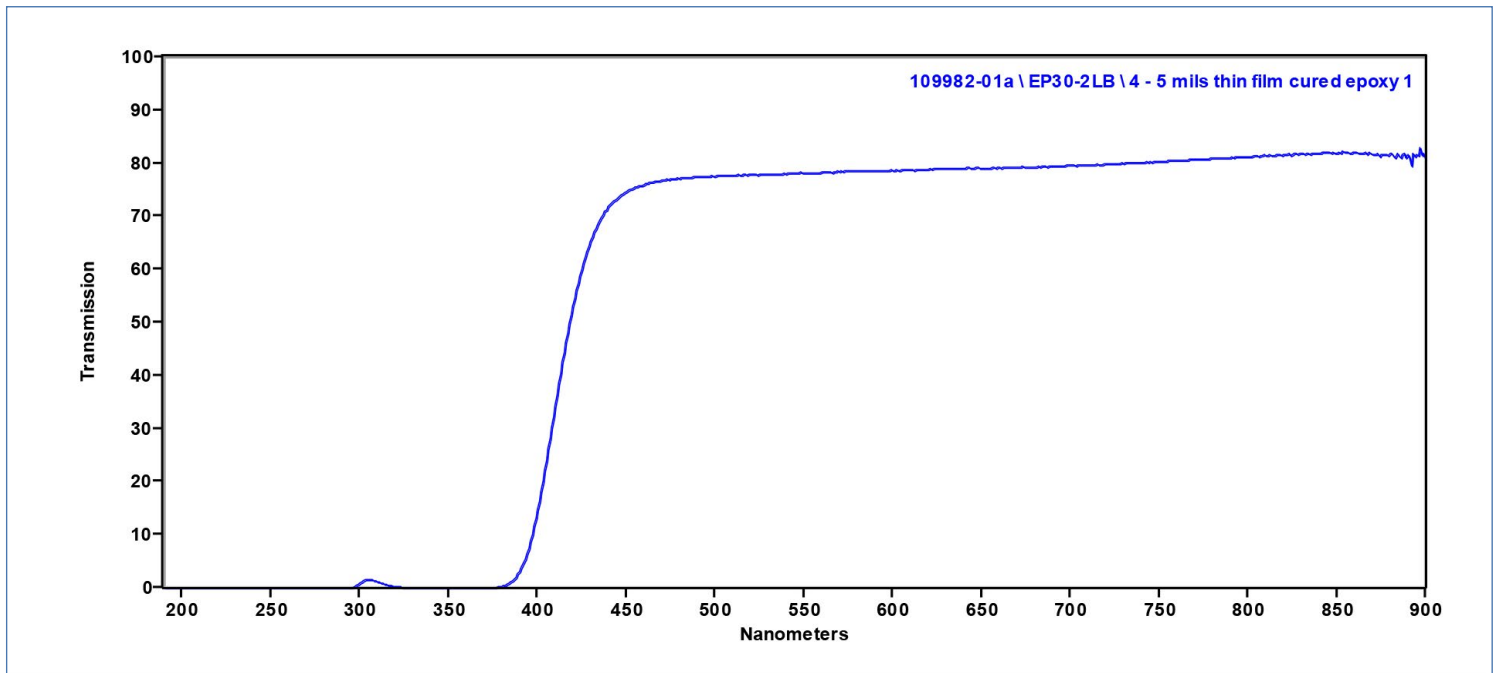
Typical Properties

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
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	-80°F to +300°F [-62°C to +149°C]

Mixing and Curing

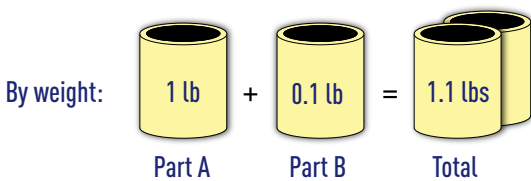
Mixing ratio, Parts A to B	10:1 by weight
Viscosity, Part A, 75°F	10,000-16,000 cps
Viscosity, Part B, 75°F	10-35 cps
Working life after mixing, 75°F; 100 gram batch	20-40 minutes
Specific gravity	0.98
Cure schedule options	
75°F	24-48 hours
200°F	2-3 hours
Optimum cure schedule	Overnight at 75°F, followed by 2-3 hours at 150-200°F
Shelf life at 75°F, in original unopened containers	1 year

Figure 1: Light Transmission



Preparation of Adhesive

Master Bond EP30-2LB 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 EP30-2LB 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 EP30-2LB 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 EP30-2LB can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP30-2LB 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 of 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



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.