EP42HT-2Med Master Bond Polymer System

Two component epoxy compound for medical device assembly

Key Features

- ✓ **USP Class VI approved**
- ✓ **High temperature resistant**
- ✓ **Sterilization resistant**
- ✓ **Cures at room temperature or elevated temperatures**
- ✓ **Serviceable from -60°F to 450°F**
- ✓ **Castable to thicknesses exceeding 2-3 inches**

Product Description

Master Bond Polymer System EP42HT-2Med is a room temperature curable two component epoxy, adhesive, sealant, coating and casting material featuring high temperature resistance along with outstanding chemical resistance. It is widely used in medical devices because of its capability of withstanding repeated sterilizations, including radiation, ethylene oxide, chemical sterilants and especially autoclaving. In addition, it fully complies with the testing requirements of USP Class VI plastics. EP42HT-2Med is a superior adhesive, sealant and coating and can also be used for potting and encapsulating up to 2-3 inches thick. EP42HT-2Med cures readily at ambient temperatures or more quickly at elevated temperatures. To optimize properties and ensure biocompatibility, a desirable cure schedule is overnight at room temperature followed by 2-4 hours at 150-200°F. It has an easy to use 100 to 40 mix ratio by weight or 100 to 50 by volume. In addition to withstanding various types of sterilizations, it resists acids, bases, solvents and fuels. EP42HT-2Med has excellent electrical insulation properties. Especially noteworthy is its serviceability from -60°F up to 450°F. EP42HT-2Med is widely used in the medical industry for manufacturing and repairing endoscopes, surgical instruments, catheters and many other medical devices. Additionally, EP42HT-2Med is available in black as a USP Class VI system.

Product Advantages

- Convenient 100 to 40 mix ratio by weight or 100 to 50 by volume
- Can be used as adhesive, sealing, coating, potting or encapsulation compound
- Withstands multiple cycles of medical sterilization
- Outstanding resistance to radiation, EtO, chemicals and steam
- Excellent chemical resistance to acids, bases and many solvents
- Available in amber-clear and black as a USP Class VI system
- Contains no solvents

Typical Properties

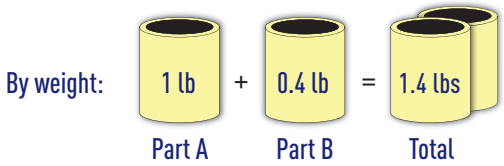
Tensile strength, 75°F	**>12,000 psi**
Elongation, 75°F	**<5%**
Tensile lap shear, aluminum to aluminum, 75°F	**>2,000 psi**
Tensile modulus, 75°F	**350,000-400,000 psi**
Coefficient of thermal expansion	**35-40 in/in x 10^{-6}/°C**
Volume resistivity, 75°F	**>10^{14} ohm-cm**
Dielectric constant, 75°F, 60Hz	**3.8**
Hardness	**>75 Shore D**

Mixing and Curing

Shelf life at 75°F, in original unopened containers	6 months
Mixing ratio, Part A to B	100:40 by weight
Mixing ratio, Part A to B	100:50 by volume
Viscosity of Part A, 126°F [52°C]	1,000-1,800 cps
Viscosity of Part A, 75°F [24°C]	55,000-110,000 cps
Viscosity of Part B, 75°F	30-70 cps
Working life after mixing, 75°F; 100 gram batch	45-75 minutes
Cure schedule	
75°F	48-72 hours
200°F	2-3 hours

Preparation of Adhesive

Master Bond Polymer System EP42HT-2Med is prepared for use by thoroughly mixing Part A with Part B in a non-critical 100 to 40 mix ratio by weight or 100 to 50 by volume.



By volume: 1 pint + 0.5 pint = 1.5 pints

Mixing should be done slowly to avoid entrapping air. The working life of a mixed 100 gram batch is 45-75 minutes. It can be further lengthened by using shallow 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. Certain metal or plastic surfaces should be mechanically or chemically etched in order to maximize bond strength. Castings can be accomplished in rubber, plastic or metal molds after application of appropriate mold releases. When casting, vacuum degassing may be necessary to eliminate all air bubbles.

Adhesive Application

For bonding or sealing, EP42HT-2Med can be conveniently applied with a brush, paint roller, spatula or knife. Enough mixed adhesive should be applied to obtain an adhesive bond line thickness of 4-6 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 since EP42HT-2Med 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 adhesive during fixturing. For potting and casting, the EP42HT-2Med is readily pourable.

Cure

Master Bond Polymer System EP42HT-2Med can be cured at room temperature or at elevated temperatures as desired. At room temperature, EP42HT-2Med cures within 48-72 hours; faster cures can be realized at elevated temperatures, e.g. 2-3 hours at 200°F. To optimize properties and ensure biocompatibility, a desirable cure schedule is overnight at room temperature followed by 2-4 hours at 150-200°F. When potting, the thicker the section, the faster the rate of cure.

Packaging

Product available in:

- 1/2 Pint kits
- Pint kits
- Quart kits
- Gallon kits
- 5 Gallon kits

Specialty packaging also available in premixed and frozen syringes, bubble packs and gun dispensers.

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 MSDS. 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 Certified

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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