

EP62-1LPSP

Master Bond Polymer System

Two component, high performance epoxy system featuring convenient handling along with excellent temperature and chemical resistance

Key Features

- ✓ Exceptionally low viscosity
- ✓ Very long pot life at room temperature
- ✓ Fine optical clarity
- ✓ Cryogenically serviceable
- ✓ Meets NASA low outgassing specifications
- ✓ Withstands 1,000 hours 85°C/85% RH

Product Description

Master Bond EP62-1LPSP combines user friendly processing along with exceptional product properties after curing. Notably, this system passes NASA low outgassing tests. It has a very forgiving mix ratio of 100:25 by weight. Upon mixing, the viscosity is markedly low and the working life is impressively long. Curing is straightforward and easy, simply heat for 8-10 hours at 60-70°C, 60-90 minutes at 80-100°C or 30-60 minutes at 125°C. Post curing at 100-150°C for 3-4 hours will help optimize properties. (Please see the cure section for more details.) EP62-1LPSP blends an array of attractive physical strength properties and reliable electrical insulation values. It bonds well to a wide variety of substrates including metals, composites, glass and many plastics. It has outstanding thermal stability with a temperature range extending from 4K to +400°F. Its chemical resistance is extensive, ranging from water, fuels, oils, solvents, acids and bases. It has splendid optical clarity as well. Its thin consistency, long open time and low exotherm upon curing allows this system to be used for

moderate and larger sized electrical encapsulations. One very special and unusual property of this system is adding heat will greatly lower the viscosity for a relatively longer time span. For example, at 40°C, the viscosity drops 60-90 cps. After 20 minutes, it is only about 100-110 cps, and after 40 minutes it is 160-190 cps. (This data is summarized below.) EP62-1LPSP is highly versatile and can be used in aerospace, electronic, fiber-optic, optoelectronic and specialty OEM applications where this favorable mix of product properties is desirable.

Product Advantages

- Easy to use, forgiving 100 to 25 mix ratio by weight
- Long working life
- Superior resistance to a wide variety of chemicals
- Highly useful electrical insulation properties
- Top notch physical strength attributes
- Well suited for impregnation applications

Typical Properties

Tensile lap shear strength, aluminum to aluminum, 75°F	1,800-2,000 psi
Tensile strength, 75°F	11,000-12,000 psi
Tensile modulus, 75°F	500,000-550,000 psi
Hardness, 75°F	75-85 Shore D
Hardness after 1,000 hours 85°C/85% RH	85 Shore D
Coefficient of thermal expansion, 75°F	40-45 x 10 ⁻⁶ in/in/°C
Glass transition temperature (T _g)	80-85°C
Volume resistivity, 75°F	>10 ¹⁴ ohm-cm
Service temperature range	4K to +400°F [4K to +204°C]

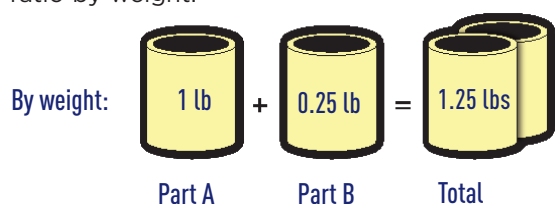
Mixing and Curing

Mixing ratio, Parts A to B	100:25 by weight
Viscosity of Part A, 75°F	400-900 cps
Viscosity of Part B, 75°F	15-75 cps
Viscosity of mixed compound, 75°F	150-300 cps
Viscosity at 40°C	
Initial	60-90 cps
After 20 minutes	100-110 cps
After 40 minutes	160-190 cps
Working life after mixing, 75°F, 100 gram batch	12-24 hours
Cure schedule options	
140-158°F (60-70°C)	8-10 hours
176-212°F (80-100°C)	60-90 minutes
257°F (125°C)	30-60 minutes
Post cure for optimum properties	3-4 hours at 100-150°C
Shelf life at 75°F, in original, unopened containers	1 year in cans, 6 months in syringes

Preparation of Compound

Please note that the curing agent (Part B) may crystallize in certain cold conditions. If this occurs simply heat at 120°F for 15 minutes and allow it to return to room temperature before mixing Parts A and B together.

Master Bond EP62-1LPSP is prepared for use by thoroughly mixing Part A with Part B in a non-critical 100 to 25 mix ratio by weight.



Mixing should be done slowly to avoid entrapping air. The working life of a mixed 100 gram batch is 12-24 hours. It can be further lengthened by using shallow mixing vessels or mixing smaller size batches.

Preparation of Bonding Surfaces

All bonding and/or sealing surfaces should be carefully cleaned, degreased and dried to obtain the maximum strength. Metals, plastics and other surfaces should be chemically etched or mechanically abraded (e.g. sand blasted) for maximum bond strength. If this is not possible, surfaces should be roughened as much as possible with sandpaper or emery paper and cleaned with acetone, xylene or alcohol.

Application and Assembly

For bonding or sealing, EP62-1LPSP 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 2-6 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 EP62-1LPSP 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. When potting and encapsulating, 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 EP62-1LPSP cures at moderately elevated temperatures as desired. Typical cure conditions range from 8-10 hours at 60-70°C, 60-90 minutes at 80-100°C or 30-60 minutes at 125°C. Post curing at 100-150°C for 3-4 hours will help optimize properties. Another option to minimize flow after application is to allow EP62-1LPSP to cure at room temperature for 24-36 hours, followed by an elevated temperature 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 the form of 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 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 85°C / 85%RH
Low Outgassing



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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