



Supreme 12AOHT-LO

Master Bond Polymer System

One part, thermally conductive, electrically insulating, high performance epoxy for bonding and sealing; meets NASA low outgassing specifications

Key Features

- ✓ Cryogenically serviceable
- ✓ Superior ability to withstand thermal cycling
- ✓ Convenient handling, no mixing and no freezing
- ✓ High temperature resistant
- ✓ Exceptionally low shrinkage upon curing
- ✓ Withstands 1,000 hours 85°C/85% RH

Product Description

Master Bond Supreme 12AOHT-LO has an impressive combination of easy and straightforward processing along with an array of superb properties after curing. It is a single component system that cures at 125°C (257°F) in 60-70 minutes and 150°C (302°F) in 40-50 minutes. There is no need for it to be stored frozen. Additionally, it has unlimited working life at room temperature. Upon cross-linking, Supreme 12AOHT-LO has numerous favorable attributes highlighted by excellent thermal conductivity, superior electrical insulation and the ability to withstand rigorous thermal cycling. It bonds well to a wide variety of substrates, including metals, composites, glass, ceramics and many plastics. This epoxy has formidable bond strength, particularly in the shear mode, exceeding 3,500 psi. The service temperature range is eye-catching, extending from 4K to +500°F. Also, it truly qualifies as a NASA low outgassing system. Along with the attractive profile, this structure has superlative dimensional stability and a robust aggregation of physical strength properties.

Supreme 12AOHT-LO is a toughened system with superior resistance to aggressive thermal cycling and shock. It is

notable for its dimensional stability and its impressive array of physical strength properties. Supreme 12AOHT-LO has ample chemical resistance, particularly to water, oil, fuels and solvents. It is gray in color. Supreme 12AOHT-LO is a compelling choice for bonding and sealing in aerospace, electronic, electro-optic, specialty OEM as well as for vacuum environments, where the combination of convenient processing and handling along with the extensive performance profile discussed previously is highly desirable.

Product Advantages

- Single component system; no mixing prior to use
- Unlimited working life at room temperature
- High bond strength, particularly lap shear
- Extraordinary temperature range from 4K to +500°F
- Fully meets ASTM E595 for low outgassing
- Capable of withstanding rigorous thermal cycling
- Combines excellent electrical insulating values along with substantial thermal conductivity

Typical Properties

Solids content	100%
Tensile strength, 75°F	7,000-8,000 psi
Tensile lap shear strength, aluminum to aluminum, 75°F	3,400-3,600 psi
Tensile modulus, 75°F	550,000-600,000 psi
T-peel strength, aluminum to aluminum, 75°F	5-10 pli
Compressive strength, 75°F	22,000-24,000 psi
Thermal conductivity, 75°F	9-10 BTU•in/ft ² •hr•°F [1.30-1.44 W/(m•K)]
Hardness, 75°F	80-90 Shore D
Hardness after 1,000 hours 85°C/85% RH	88 Shore D
Volume resistivity, 75°F	>10 ¹⁴ ohm-cm
Dielectric constant, 60 Hz	4.4
Service temperature range	4K to +500°F [4K to +260°C]

Typical Properties (con't)

Viscosity, 75°F	Smooth, thixotropic paste
Cure schedule	
250°F	60-70 minutes
300°F	40-50 minutes
Shelf life at 75°F, in original, unopened containers (Refrigerate at 45-55°F, for maximum shelf life)	3 months minimum, 6 months maximum

Preparation of Adhesive

Master Bond Supreme 12AOHT-LO does not require any mixing before use. Some stirring is recommended if the adhesive has been stored for a prolonged time period without use. Such stirring should be done slowly to avoid entrapping air.

Preparation of Bonding Surfaces

All bonding surfaces should be carefully cleaned, degreased and dried for obtaining the maximum bond strengths. Also, when bonding to metal and plastic surfaces, chemical etching might have to be used to obtain optimum performance properties. At the minimum, all substrates should be roughened or mechanically abraded followed by solvent cleaning using acetone or xylene.

Adhesive Application

Master Bond Supreme 12AOHT-LO can be conveniently applied with a syringe or spatula. Enough epoxy should be applied to obtain a final adhesive bond line thickness of 3-7 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 as the Supreme 12AOHT-LO adhesive system does not contain any volatiles. The parts to be bonded should then be clamped together with just enough pressure to obtain and maintain intimate contact during cure. Care should be taken not to squeeze out the adhesive when fixturing. Since Supreme 12AOHT-LO is 100% reactive and does not contain any solvents or diluents, shrinkage on cure is minimal.

Cure

Supreme 12AOHT-LO requires an elevated temperature cure. The recommended curing conditions are 60-70 minutes at 250°F, or 40-50 minutes at 300°F for maximum bond strength. Only contact pressure need be applied during the curing process. Excess adhesive should be removed promptly before it hardens with a spatula. After removal of the excess adhesive, wipe with a rag and solvent such as acetone, toluene or lacquer thinner.

Packaging

Product is available in:

- Syringes
- 1/2 Pints
- Pints
- Quarts
- Gallons
- 5 Gallons



Handling and Storage

All epoxy systems 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.