

Polymer Composites Incorporated

1871 South Lake Place Ontario California 91761
Tel. (909) 673 –1625 Fax (909) 673 1625
www.polymercompositesinc.com

Technical Data Sheet MAX GFE A/B Glass Filled Epoxy

Description

MAX GFE A/B is a two-component epoxy based resin that exhibits very high tensile strength properties. It is filled with milled fiberglass and the vacuum, processed to remove any entrapped or incorporated air bubbles. The filler dramatically improves the tensile strength, flexural modulus, thermal conductivity, abrasion resistance and surface hardness compared to an unfilled system. MAX GFE A/B is easily mixed and poured into place. It is self-leveling and has low thixotropic gel-like consistency. A 2000 gram mass can be mixed without overheating due to exothermic heat generation and will provide up to a one hour working time. MAX GFE A/B is suitable for casting parts that require high tensile strength, dimensional stability and hardness. It can also be utilized as a potting compound that requires higher electrical insulative properties than standard potting compounds. It is suitable for use with silicone, polyurethane, steel, and wood molds. MAX GFE A/B can be demolded after 36 hours room temperature cure or for a faster demold times, post cured under heat (30 minutes at 200°F) after it has gelled for 4 hours at room temperature allow to cool and demold.

Application and Usage

The fillers incorporated in the MAX GFE Part A may settle during storage and will require dispersing to insure proper cured performance. Gently agitate by hand mixing with a spatula or by mechanical impeller mixer until the filler is uniformly dispersed. Avoid aggressive mixing to help reduce excessive air entrapment. If available, use a vacuum to degas the resin to accelerated air bubble removal. Allow the mixed Part A to sit for about 30 minutes to permit any entrapped air bubbles to evacuate. To remove stubborn air bubbles from the surface, use a hot air gun or a hair dryer or a propane torch and pass it very quickly over the surface.

Casting with MAX GFE A/B

Prepare mold by cleaning and applying a good quality wax mold release or PVA parting film. If using PVA parting film, allow the PVA to dry completely and make sure that the mold is secured on a level plane. Measure out the proper amounts Part A and Part B based on a 2:1 by weight mix ratio in a clean container (the resin is heavier in density than the curing agent). Gently mix until a uniform consistency is achieved (2 minutes). Do not mix aggressively to avoid excessive air entrapment. Transfer the mixture into another clean container and continue mixing for another minute. This will guarantee a thorough mixture. Slowly pour the mixture in the prepared mold and allow to spread unaided to minimize air entrapment. To remove stubborn air bubbles from the surface, use a hot air gun or a propane torch and pass it very quickly over the surface.

Allow the casting to cure at room temperature; depending on the ambient temperature cures times can vary from 24 to 48 hours. If available, use a Durometer to determine the cured hardness, a reading of 65 D will be sufficient for demolding or attempt to indent the casting with using your fingernail, if it does not indent then it is ready for demolding. Longer cure times may be required when curing below 70°F. For a faster demold time, allow the casting to set-up for 3 hours at room temperature then post cure in an oven for 2 hours at 200°F. Allow it to cool gradually and demold.

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Physical and Mechanical Data

Viscosity Part A	15,800 cPs
Viscosity Part B	250 cPs
Mixed Viscosity	1250 cPs
Mix Ratio By Volume	100 Parts A to 50 Parts B (2:1)
Mixed Density	1.40 g/cc
Working Time:	120 minutes (400 gram mass)
Peak Exotherm:	150°F max (400 gram mass)
Shore Hardness:	85 to 90 Shore D
Shrinkage:	<0.10 %
Compressive Strength:	21,800 psi
Tensile Strength:	13,900 psi
Tensile Elongation:	1.3%
Heat Distortion Temperature:	200°F

PACKAGING AND STORAGE

MAX GFE A/B A/B is available in use size kits, 5 gallon and 55-gallon kits; special packaging requests are also available. Stir MAX GFE A/B A/B in their respective shipping container to insure uniform dispersion of filler before dispensing. Replace lid and seal tightly and store in a cool dry place. DO NOT store above 30°C for prolonged period. MAX GFE A/B A/B is warranted for 6 months from the date of shipment.

SAFETY NOTE

This product is for industrial use only. Please review all precautions before using this product. As with all products of the same nature, avoid prolonged inhalation and repeated skin contact. Always wear safety goggles and impervious rubber gloves when handling this material. Large mass curing of this product is not recommended for it may produce noxious fumes. The information contained herein is based on data believed to be accurate at the time of publication. Data and parameters cited have been obtained by PCI using materials under controlled conditions. Data of this type should not be used for specification for fabrication and design. It is the user's responsibility to determine this products fitness for use. PCI warrants only that this product will only meet the cited parameters within the established conditions. There is no warranty of merchantability, fitness of use, nor any other express implied warranty. The user's exclusive remedy and the manufacturer's liability are limited to refund of the purchase price or replacement of the product within the agreed warranty period.

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The user should thoroughly test any proposed use of this product and independently conclude satisfactory performance in the application. Likewise, if the manner in which this product is used requires government approval or clearance, the user must obtain said approval. Determination of the suitability of any kind of information or product for the use contemplated by the user, the manner of use and whether there is any infringement of patent is the sole liability of the user.