MA550 Technical Data Sheet

Benefits

No Surface Preparation
High Toughness
Excellent Durability
White, UV Stable
100% Reactive
Non-Sagging

Characteristics

Room Temperature Cure
Working Time[2]
40 - 45 minutes
Fixture Time[3]
70 - 75 minutes
51°F Flash Point
Operating Temperature
-67°F to 250°F
Gap Filling to .375 inches
Mixed Density
8.75 lbs/gal (1.05 g/cc)

Chemical Resistance[4]

Excellent resistance to
- Acids and Bases (3-10 pH)
- Salt Solutions

Susceptible to:
- Polar Solvents
- Strong Acids and Bases
- Hydrocarbons (including gasoline and diesel fuel)

Recommended for:

ABS
Acrylics
FRP
Gelcoats[6]
Polyesters (including DCPD modified)
PVC
Urethanes (General)
Styrenics
Vinyl Esters

Plexus® MA550 is a two-part methacrylate adhesive designed for structural bonding of thermoplastic, metal and composite assemblies[1]. Combined at a 10:1 ratio, it has a working time of 40 to 45 minutes and achieves 75% of ultimate strength in 70 to 75 minutes. Plexus MA550 is the standard for secondary bonding applications in the marine industry, because it requires virtually no surface preparation. In addition, the product provides a unique combination of excellent fatigue endurance, outstanding impact resistance, and superior toughness at temperatures below 0°F. This adhesive is bright white and UV stable. Plexus MA550 is supplied in ready-to-use cartridges, 5 gallon pails, or 50 gallon drums and can be dispensed as a non-sagging gel using standard meter-mix equipment.

Physical Properties (Uncured) -Room Temperature

	Adhesive	Activator
Viscosity, cP	130,000 - 160,000	40,000 - 60,000
Color	Off-White	White
Density, lbs/gal (g/cc)	7.75 (0.93)	14.3 (1.72)
Mix Ratio by Volume	10	1
Mix Ratio by Weight	5.4	1

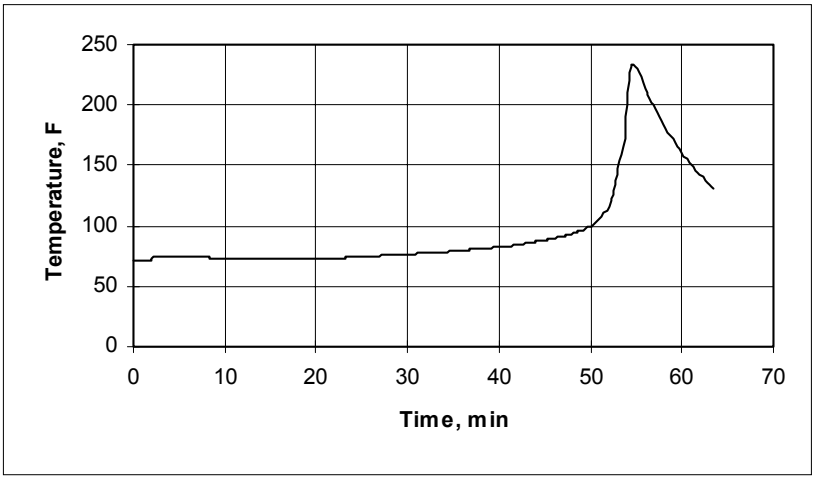
Mechanical Properties (Cured) -Room Temperature

Tensile (ASTM D638)

Strength, psi	1750 - 2000
Modulus, psi	40,000 - 50,000
Strain to Failure (%)	35 - 45

Lap Shear (ASTM D1002)

Cohesive Strength, psi	1300 - 1800



Typical Exotherm Curve for MA550 at 75°F (10 grams)[5]

HANDLING AND APPLICATION

Plexus® MA550 adhesive (Part A) is flammable. Contents include Methacrylate Ester. Keep containers closed after use. Wear gloves and safety glasss to avoid skin and eye contact. Wash with soap and water after skin contact. In case of eye contact, flush with water for 15 minutes and get medical attention. Harmful if swallowed. Keep out of reach of children. Keep away from heat, sparks, and open flames. For more complete health and safety information contact ITW Plexus for a Material Safety Data Sheet (MSDS).

Note: Because of the rapid curing features of this product, large amounts of heat are generated when large masses of material are mixed at one time. The heat generated by the exotherm resulting from the mixing of large masses of adhesive can result in the release of entrapped air, steam, and volatile gases. To prevent this, use only enough material as needed for use within the working time for the product and confine gap thickness to no more than .375 inch. Questions relative to handling and applications should be directed to ITW Plexus at 800-851-6692.

DISPENSING ADHESIVE

MA550 may be applied manually or with automated equipment. Automated application may be accomplished with a variety of 10 to 1 meter-mix equipment delivering both components to a static mixer. For information concerning meter mix equipment, contact ITW Plexus Sales Representatives. Pre-measured cartridges are also available, as well as the hand-held guns with which to dispense the adhesive. For more information, contact ITW Plexus at (800) 851-6692. To assure maximum bond strength, surfaces must be mated within the specified working time. Use sufficient material to ensure the joint is completely filled when parts are mated and clamped. All adhesive application, part positioning, and fixturing should occur *before* the working time of the mix has expired. After indicated working time, parts must remain undisturbed until the fixture time is reached. Automated equipment should be constructed of stainless steel or aluminum. Avoid contact with copper or copper containing alloys in all fittings, pumps, etc.. Seals and gaskets should be made of Teflon, Teflon-coated PVC foam, ethylene/propylene or polyethylene. Avoid the use of Viton, BUNA-N, Neoprene or other elastomers for seals and gaskets. Clean-up is easiest *before* the adhesive has cured. Citrus terpene or N-methyl pyrolidone (NMP) containing cleaners and degreasers can be used for best results. If the adhesive is already cured, careful scraping, followed by a solvent wipe may be the most effective method of clean-up.

EFFECT OF TEMPERATURE

Application of adhesive at temperatures between 65°F and 80°F will ensure proper cure. Temperatures below 65°F will slow cure speed; above 80°F will increase cure speed. The viscosities of Parts A and B of this adhesive are affected by temperature. To ensure consistent dispensing in meter-mix equipment, adhesive and activator temperatures should be held relatively constant throughout the year.

STORAGE AND SHELF LIFE

Shelf life of MA550 adhesive (Part A) is 1 year from day of shipment from ITW Plexus. Shelf life of activator (Part B), including cartridges that contain activators, is 9 months from day of shipment. Shelf life is based on continuous storage between 55°F and 75°F. Long term exposure above 75°F will reduce the shelf life of these materials. Prolonged exposure of activators, including cartridges which contain activators, above 100°F quickly diminishes the product's reactivity and should be avoided. Shelf life can be extended by refrigeration (45°F - 55°F). These products should never be frozen.

Notes

1. ITW Plexus strongly recommends all substrates be tested with the selected adhesive in the anticipated service conditions to determine suitability.
2. Working Time: The time elapsed between the moment Parts A and B of the adhesive system are combined and thoroughly mixed and the time when the adhesive is no longer useable. Times presented were tested at 75°F.
3. Fixture Time: The interval of time after which surface being joined will support a 2 lb. (1 kg) dead weight on a 1/2 inch (12.7 mm) overlap joint 1 inch (25.4 mm) wide without movement. Times presented were tested at 75°F.
4. Resistance to chemical exposure varies greatly based on several parameters including; temperature, concentration, bondline thickness, and duration of exposure. The chemical resistance guidelines listed assume long term exposures at ambient conditions.
5. In a typical bond line, exotherm temperatures will be lower than the temperatures shown.
6. Urethane-modified super-weathering gelcoats may require an alternate adhesive. As with all substrates, these gelcoats should be tested with the selected adhesive to determine suitability.