MA685 Technical Data Sheet

PLEXUS® STRUCTURAL ADHESIVES

Benefits

Clear
UV Stable
Fast Cure
100% Reactive
Sandable
Minimal Surface Preparation

Characteristics

Room Temperature Cure

Working Time[2]
7 - 12 minutes (MA6x22 Act)
Fixture Time[3]
18 - 25 minutes (MA650 Act)
Mixed Density
8.96 lbs/gal (1.01 g/cc)
Maximum Bond Gap
1/4 in. (0.25in.)

Environmental Resistance[4]

Excellent resistance to
- Water
- Impact
- Scuffing
- High Temperatures
- Ultra-violet light (UV)

Recommended for:

- Acrylic sheet
- Polyester sheet
- Thermoplastics
- Gelcoats
- FRP / Composites

Plexus® MA685 is a two-part methacrylate adhesive designed for solid surface seaming and assembly[1]. MA6685 is highly translucent and clear, UV stable and non-yellowing. It offers excellent adhesion to a variety of solid surface sheet materials including cast acrylic and cast/densified polyester. It exhibits high resistance to water, impact, wear, scuffing, boiling water, high temperature and UV light. Combined with MA685 activator at a 10:1 ratio, it has a working time of 8 to 11 minutes and achieves handling strength in 20 to 25 minutes.

Note: Preliminary and subject to modification

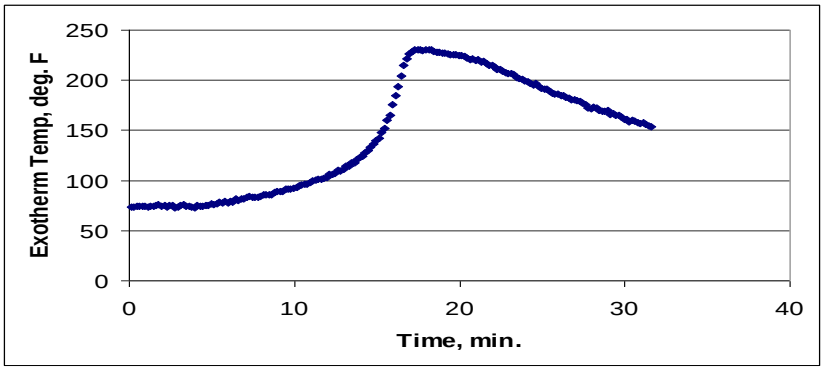
Physical Properties (Uncured) -Room Temperature

	Adhesive MA685	Activator MA685
Viscosity, cP x 1000	18 – 24	30 - 40
Color	light blue	Water White
Density, lbs/gal (g/cc)	8.5 (1.00)	9.6 (1.08)
Mix Ratio by Volume	10.0	1
Mix Ratio by Weight	9.43	1

Mechanical Properties (Cured) -Room Temperature

Butt Joint Tensile
Strength, psi 3500 - 4500

4-Point Bend (ASTM D790)
Strength, psi 4500 - 5500



Typical Exotherm Curve for MA685 at 75°F (10 grams)

HANDLING AND APPLICATION

Plexus® MA685 adhesive (Part A) is flammable. Contents include Methacrylate Ester. Keep containers closed after use. Wear gloves and safety glasses 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. Reference the Material Safety Data Sheet for more complete safety information.

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 0.375 inch. Questions relative to handling and applications should be directed to ITW Plexus at 800-851-6692.

DISPENSING ADHESIVE

MA685 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 constant throughout the year.

STORAGE AND SHELF LIFE

The shelf life of MA685 adhesive (Part A) is 1 year from day of shipment from ITW Plexus. Shelf life of the activators (Part B), including cartridges that contain activator, 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 that 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 assumes long-term exposures at ambient conditions.
5. In a typical bond line, exotherm temperatures will be lower than the temperatures shown.