Description

Plexus® MA1025 is a two-part methacrylate adhesive with very low cure shrinkage and very low odor designed for structural bonding of thermoplastic, metal, and composite assemblies. Combined at a 10:1 ratio, MA1025 has a working time of 20 to 25 minutes and achieves approximately 75% of ultimate strength in 40 to 45 minutes at 74°F (23°C). This product is the standard for structural bonding in the marine industry because it requires virtually no surface preparation. Plexus MA1025 is designed to be used for bonding stringers and liners into fiberglass boats with bond lines up to one inch thick. In addition, this product provides a unique combination of excellent fatigue endurance, outstanding impact resistance, and superior toughness. Plexus MA1025 is available in blue and is supplied in ready-to-use 380-ml cartridges, 5-gallon (20-liter) pails, or 50-gallon (200-liter) drums to be dispensed as a non-sagging gel.

Characteristics

Room Temperature Cure
- Working Time: 20 – 25 minutes
- Fixture Time: 40 – 45 minutes
- Operating Temperature: -40°F – 180°F (-40°C – 82°C)
- Gap Filling: 0.08 in. – 1.00 in. (2 mm – 25 mm)
- Mixed Density: 8.14 lbs/gal (0.98 g/cc)
- Flash Point: 51°F (11°C)

Chemical Resistance

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

Susceptible to:
- Polar Solvents
- Strong Acids and Bases

Typical Physical Properties (uncured) – Room Temperature

<table>
<thead>
<tr>
<th>Property</th>
<th>Adhesive</th>
<th>Activator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, cP</td>
<td>180,000 – 220,000</td>
<td>35,000 – 70,000</td>
</tr>
<tr>
<td>Color</td>
<td>Off-White</td>
<td>Blue</td>
</tr>
<tr>
<td>Density, lbs/gal (g/cc)</td>
<td>8.06 (0.97)</td>
<td>8.9 (1.07)</td>
</tr>
<tr>
<td>Mix Ratio by Volume</td>
<td>10.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Mix Ratio by Weight</td>
<td>9.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Mixer Recommendation:</td>
<td>Cartridge (380-ml):</td>
<td>30 Element 0.34-in. (8.6-mm) square mixer</td>
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<tr>
<td></td>
<td>Bulk:</td>
<td>Refer to ITW PANA</td>
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</tbody>
</table>

Typical Mechanical Properties (Cured) – Room Temperature

Tensile (ASTM D638)
- Strength, psi (MPa): 1,400 – 1,800 (9.7 – 12.4)
- Modulus, psi (MPa): 60,000 – 80,000 (414 – 552)
- Strain to Failure (%): 90 – 110

Lap Shear (ASTM D1002)
- Cohesive Strength, psi (MPa): 1,200 – 2,000 (8.3 – 13.8)

Recommended for:
- ABS
- Acrylics
- FRP
- Gelcoats
- PVC
- Polymers (including DCPD modified)
- Styrenics
- Urethanes (general)
- Vinyl Esters

VOC's % (g/L)
- During Cure (see back page): <1 (<10)

Shelf Life Months
- Adhesive (A Side ): 13
- Activator (B Side ): 10
- Cartridges: 10

Typical Exotherm Curve for MA1025 (30g mass) at 74°F (23°C)

![Typical Exotherm Curve for MA1025 (30g mass) at 74°F (23°C)]
SAFETY & HANDLING: Plexus® adhesive (Part A) is flammable. Contents include methacrylate esters. 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. For more complete health and safety information, contact ITW PANA for a Material Safety Data Sheet (MSDS).

Note: Because of the rapid curing features of this product, a large amount of heat may be generated when large masses of material are mixed at one time. Further, the heat generated by the exotherm resulting from the mixing of large masses of this system can result in the release of entrapped air, steam, and volatile gases. To prevent this, dispense only enough material as needed for the application and for use within the working time of the product and confine gap thickness to no more than its maximum gap fill capability. Questions relative to handling and applications should be directed to ITW PANA at 855-489-7262.

DISPENSING ADHESIVE AND APPLICATION: Plexus Adhesives may be applied manually or with all stainless steel bulk dispensing equipment. Automated applications may be accomplished with a variety of 10- to 1 meter-mix equipment delivering both components to a static mixer. 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. For more information, contact ITW Plexus. To assure maximum bond strength, surfaces must be mated within the specified working time. Use sufficient material to ensure the joint is completely filled before the adhesive has cured. Citrus terpene or N-methyl pyrrolidone (NMP) containing cleaners, degreasers, and soap and water can be used for best results. If the adhesive is already cured, careful scraping, followed by wiping with a cleaning agent, may be the most effective method of clean up.

EFFECT OF TEMPERATURE: Application of adhesive at temperatures between 65°F (18°C) and 85°F (30°C) will ensure proper cure. Temperatures below 65°F (18°C) or above 85°F (30°C) will slow down or increase cure rate significantly. Temperature affects viscosities of Parts A and B of this adhesive. To ensure consistent dispensing in meter-mix equipment, adhesive and activator temperatures should be held reasonably constant throughout the year. Adhesive in cured state behaves differently at elevated and low temperatures. See ITW PANA for specific values.

STORAGE AND SHELF LIFE: Shelf life is based on continuous storage between 54°F (12°C) and 74°F (23°C). Long term exposure above 74°F (23°C) will reduce the shelf life of these materials. Prolonged exposure above 98°F (37°C) quickly diminishes the reactivity of the product and should be avoided. These products should never be frozen.

PRODUCT USE: Many factors beyond ITW PANA control and uniquely within user’s knowledge and control can affect the use and performance of an ITW PANA product in a particular application. Given the variety of factors that can affect the use and performance of an ITW PANA product, the end user is solely responsible for evaluating any ITW PANA product and determining whether it is fit for a particular purpose and suitable for user’s design, production, and final application.

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