PLEXUS®

TECHNICAL DATA SHEET

MA300

Description

Plexus® MA300 is a two-part methacrylate adhesive designed for structural bonding of thermoplastic, metal, and composite assemblies[1]. Combined at a 1:1 ratio, MA300 has a working time of 3 to 6 minutes and reaches approximately 500 psi in 20 minutes and 1000 psi in 35 minutes at 74°F (23°C). This product offers a combination of high strength and stiffness as well as the ability to bond a wide range of materials. Plexus MA300 is supplied in ready-to-use 50-ml and 400-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[2]	5 – 9 minutes
▪ Fixture Time[3]	20 – 25 minutes
▪ Operating Temperature[6]	-40°F – 180°F (-40°C – 82°C)
▪ Gap Filling	0.012 in. – 0.125 in. (0.30 mm – 3.2 mm)
▪ Mixed Density	9.22 lbs/gal (1.04 g/cc)
▪ Flash Point	51°F (11°C)

Chemical Resistance[4]

Excellent resistance to:	Susceptible to:
▪ Hydrocarbons	▪ Polar Solvents
▪ Acids and Bases (pH 3-10)	▪ Strong Acids and Bases
▪ Salt Solutions	

Typical Physical Properties (Uncured) – Room Temperature

	Adhesive	Activator
Viscosity, cP	40,000 – 85,000	40,000 – 70,000
Color	White	Off White
Density, lbs/gal (g/cc)	9.34 (1.12)	8.0 (0.96)
Mix Ratio by Volume	1.0	1.0
Mix Ratio by Weight	1.2	1.0
Mixer Recommendation:	Cartridge (400-ml):	30 Element 0.34-in. (8.6-mm) square mixer
	Bulk:	See back & refer to ITW PP

Typical Mechanical Properties[8] (Cured) Room Temperature

Tensile (ASTM D638)	
▪ Strength, psi (MPa)	3,000 – 3,500 (20.7 – 24.1)
▪ Modulus, psi (MPa)	135,000 – 165,000 (931 – 1137)
▪ Strain to Failure (%)	5 – 15
Lap Shear (ASTM D1002)	
▪ Cohesive Strength, psi (MPa)	2,800 – 3,500 (20.7 – 26.2) at 0.012 in. gap (0.30 mm)

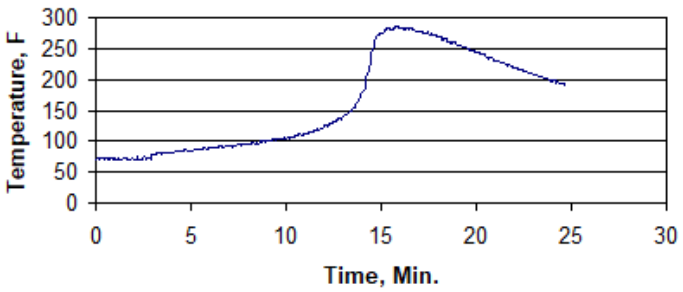
Recommended for:

- ▪ ABS
- ▪ Acrylics
- ▪ FRP
- ▪ Gelcoats
- ▪ Steel, Carbon*
- ▪ PVC
- ▪ Polyesters (including DCPD modified)
- ▪ Aluminum*
- ▪ Steel, Stainless*
- ▪ Styrenics
- ▪ Urethanes (general)
- ▪ Vinyl Esters
- ▪ Epoxy FRP

* **Plexus Primer** Suggested[7]

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

Shelf Life	Months
Adhesive (A Side)	12
Activator (B Side)	12
B Side Black	12
Standard Color in Cartridges	12
Black in Cartridges	12



TECHNICAL DATA SHEET

MA300

ITW Polymers Adhesives | NORTH AMERICA

SAFETY & HANDLING: Plexus® adhesive (Part A) and activator (Part B) are 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 heath 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 1-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 PANA. 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. Clean up is easiest *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 a 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 steady state storage between 55°F and 77°F (13°C and 25°C). Exposure, intermittent or prolonged, above 80°F (27°C) will result in a reduction of the stated shelf life. Exposure above 100ºF (38ºC) can quickly degrade shelf life and should be avoided. Shelf life may be extended by cool storage between 45°F and 65°F (7°C and 18°C). If stored cold, allow product to return to room temperature before using.

PRODUCT USE: The information herein are based upon internal testing that ITW PP believes are reliable, but the accuracy or completeness of such information is not guaranteed. Many factors beyond ITW PP control and uniquely within user's knowledge and control can affect the use and performance of an ITW PP product in a particular application. Given the variety of influencers on performance, the data here is not intended to substitute end user testing. It is the end users sole responsible for evaluating any ITW PP 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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Notes

1. **ITW PANA strongly recommends that 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 74˚F (23˚C).**
3. **Fixture Time: Varies with bond gap and ambient temperature. Present values were measured at 74˚F (23˚C).**
4. **Resistance to chemical exposure varies greatly based on several parameters including temperature, concentration, bond line 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. **All adhesives soften with temperature and should be evaluated at expected conditions. Consult with ITW PANA for values at a specific temperature.**
7. **Exterior applications require the use of coatings or primers that inhibit oxidation of the metals.**
8. **Attained test values will vary with test method, approach, speed, etc.**

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