

Description

Plexus® MA8205/BA is a two-part methacrylate adhesive designed for structural bonding of low energy plastics like polypropylene, high density polyethylene (HDPE), nylon along with thermoplastics, metals and composites. Combined at a 10:1 ratio by volume, MA8205/BA has a working time of 3-5 minutes and achieves 75% of ultimate strength in 60 minutes at 25°C. This two-component structural adhesive cures at room temperature and the mixed formulation develops tough, strong, structural bonds which provides excellent resistance to shock and impact with excellent resistance to heat and humidity. MA8205/BA is available in a ready-to-use 50ml cartridge in both white (MA8205) and black color (MA8205BA) options.

Typical Uncured Properties	Part A	Part B	Typical Cured Properties	
Color	Milky white / Black (BA)	Off white	Typical Exotherm time	8 – 15 min
Density (g/cc)	1.02	1.57	Typical Exotherm temperature (°C)	93-121°C
Mix ratio by Volume	10	1	Shore D hardness (ASTM D-2244)	60 - 66
Mix ratio by Weight	6.46	1	Dielectric constant (ASTM D150)	4.6
Viscosity, cPx1000	35 - 45	130 -200		
Mixer Recommendation	Sulzer MEFX 06-18T mix nozzle			
Shelf Life, months	6 months at 25 °C			
VOC's during cure	<1 g/L			

Typical Strength Development

Lap Shear Strength (psi)	Lap Shear Strength (MPa)	Time (hours)
70-180	0.5 - 1.24	0.5
400-800	2.76 - 5.52	1
800-1100	5.52 - 7.58	24

Recommended For:

- Polypropylene
- HDPE
- Nylon
- Glass filled PP
- Engineering thermoplastics
- ABS
- Acrylics
- FRP
- Gelcoats
- PVC
- Polyesters
- Styrenics
- Urethanes
- Chromates
- Metals to plastics

Substrate	Lap Shear (Typical)		ASTM D 1002 Failure Mode
	psi	MPa	
Polypropylene /HDPE	800-1100	5.52 – 7.58	SF
Nylon	750-900	5.17 – 6.21	CF
ABS	450-700	3.10 – 4.83	SF
PC-ABS / PC-Black	300-500	2.07 – 3.45	SF
PMMA	400-900	2.76 - 6.21	SF
PVC	700-1000	4.83 – 6.89	SF
FRP	1300-1450	8.96 – 10.00	SF
Glass filled FRP to PP	430-650	2.96 – 4.48	SF

SF = Substrate Failure, CF = Cohesive Failure

Application

- To ensure maximum bond strength, surfaces must be mated within the specified working time.
- Use sufficient material to fill the joint completely when parts are mated and fixed.
- Apply adhesive using handheld cartridges or automatic meter/mix/dispense equipment.
- Load the cartridge into the dispenser and remove the end caps.
- Attach mixing tip and expel a mixer's length of adhesive.
- Apply adhesive to substrate and mate the parts within the work time of the adhesive.
- Fix in position until sufficient bond strength is achieved.



Application

Surface Preparation - Plexus typically require little or no surface preparation, but is dependent on the material and degree of contamination on the bonding area. For optimal performances, ITW recommends surfaces to be free of grease, dirt, and other contaminants.

- >Plastics and coated metals - wipe with a dry rag or a light solvent may be sufficient.
- >Raw metal - wipe with a dry rag or a light solvent may be sufficient.
- >Metals may be affected by the degree of oxidation, scaling, fluids or other contaminants.
- >Composites - dust free surfaces can be bonded as is or may require light abrasion to remove mold releases, or to increase the surface area.

Other surfaces should have the same considerations. ITW recommends customers test to determine the optimal preparation for their materials to ensure suitability.

Recommended Application 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 the consistent dispensing of adhesive and activator, material temperature should be held reasonably constant throughout the year.

Clean-Up

Clean up is easiest before the adhesive has cured. Common lab solvents, Citrus terpene or N-methyl pyrrolidone (NMP)-containing cleaners, degreasers, or soap & 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.

Bulk Dispensing of Drums or Pails

Plexus may be applied manually/pneumatically from cartridges or with bulk dispensing equipment. Bulk equipment must be explosion proof. All parts in direct contact with the liquid adhesive and activators should be stainless steel. Avoid contact with brass, carbon steel, 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. Automation is available from a variety of equipment manufacturers.

Safety & Handling

ITW recommends users to follow all recommended safe practices for handling its products. Refer to the product Technical Data Sheet (TDS), Safety Data Sheet (SDS), and label for health and safety information before using this product. Also refer to itwpp.com for additional information and other frequently asked questions.

Note: When mixing large masses of material at one time, a large amount of heat may be generated due to the exothermic reaction created by the rapid-curing of the product. This heat can result in the release of entrapped air, steam, and volatile gases. To prevent this, dispense only enough material for use within the working time of the product and confine gap thickness to no more than its maximum gap fill capability.

Chemical Resistance

Chemical resistance is impacted by direct or indirect contact, frequency, duration of contact, and ambient or solution temperatures.

Excellent Resistance to: Hydrocarbons, acids and bases (pH 3-10), and salt solutions

Susceptible to: Strong polar solvents, strong acids, and bases

Shelf Life & Recommended Storage

Shelf Life is based on continuous storage between 55°F and 77°F (13°C and 25°C). Exposure, intermittent or prolonged exposures above 80°F (27°C) will result in a reduction of shelf life. Exposure above 100°F (38°C) 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

Industrial Use Only. Many factors beyond ITW control and uniquely within user's knowledge and control can affect the performance of this product in any particular application. Given the variety of factors that can affect use and performance, the end user is solely responsible for evaluating any ITW product and determining its suitability and fitness for a particular purpose, product design, production, final application, and end result.

Exclusion of Warranties

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Limitation of Liability

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