

PLEXUS MA530

Description Plexus® MA530 is a two-part methacrylate adhesive designed for structural bonding of thermoplastic, metal, and composite assemblies¹. Combined at a 1:1 ratio, MA530 has a working time of 30 to 40 minutes and reaches approximately 75% of ultimate strength in 90 to 160 minutes at 23 C (74°F). This product has been designed for use on large structures where a moderate open time product is needed. Plexus MA530 may be used for composite and metal bonding for small to large structures. In addition, this product provides a unique combination of excellent fatigue endurance, outstanding impact resistance, and superior toughness. Plexus MA530 is gray when mixed and is available in ready-to-use 400 ml cartridges, 20 litre (5 gallon) pails and 200 litre (50 gallon) drums to be dispensed as a non-sagging gel using standard meter-mix equipment⁹.

Characteristics	Room Temperature Cure	
	<ul style="list-style-type: none"> ▪ Working Time² 30 – 35 minutes ▪ Fixture Time³ 90 – 160 minutes ▪ Operating Temperature⁷ -40°C – 82°C (-40°F – 180°F) ▪ Gap Filling⁸ 0.75mm to 18mm (0.03in. to 0.70 in.) ▪ Mixed Density 0.95 g/cc (7.95 lbs/gal) ▪ Flash Point 11°C (51°F) 	

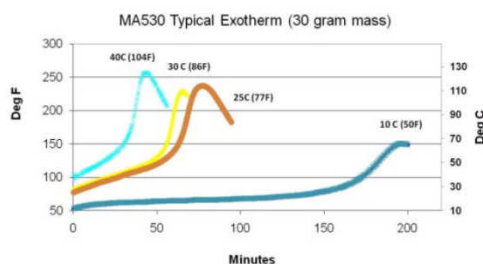
Chemical Resistance⁴	Excellent resistance to:	Susceptible to:
	<ul style="list-style-type: none"> ▪ Acids and Bases (3-10 pH) ▪ Salt Solutions 	<ul style="list-style-type: none"> ▪ Polar Solvents ▪ Strong Acids and Bases

Physical Properties (uncured) – Room Temperature	Adhesive	Activator	
	Viscosity, cp	135,000 - 165,000	180,000 - 205,000
	Colour	White	Black
	Density, g/cc (lbs/gal)	0.95 (7.75)	0.95 (7.95)
	Mix Ratio by Volume	1.0	1.0
	Mix Ratio by Weight	1.0	1.0

Mechanical Properties (Cured) Room Temperature	Tensile (ASTM D638)	
	<ul style="list-style-type: none"> ▪ Strength, MPa (psi) 20.7 – 24.1 (3,000 – 3,500) ▪ Modulus, MPa (psi) 414 – 483 (60,000 – 70,000) ▪ Strain to Failure (%) 130 – 170 	

Recommended for:	<ul style="list-style-type: none"> ▪ ABS ▪ Acrylics ▪ FRP ▪ Gelcoats⁶ 	<ul style="list-style-type: none"> ▪ PVC ▪ Polyesters (including DCPD modified) ▪ Stainless Steel⁷ 	<ul style="list-style-type: none"> ▪ Styrenics ▪ Vinyl Esters
-------------------------	--	--	---

Lap Shear (ASTM D1002)	Cohesive Strength MPa (psi)	13.1 – 15.2 (1,900 – 2,200)
-------------------------------	------------------------------------	-----------------------------



Typical Exotherm Curve for MA530 in a 30gm Mass⁵

PLEXUS MA530

HANDLING AND APPLICATION

Plexus® MA530 adhesive (Part A) and activator (Part B) are 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 18mm (0.70 in.). Questions relative to handling and applications should be directed to ITW Plexus at +44(0)870 458 7588

DISPENSING ADHESIVE

MA530 may be applied manually or with all stainless steel bulk dispensing equipment. Static mixer selection is critical to the proper mixing and performance of Plexus adhesives. All machines dispensing Plexus should have shrouds where applicable. For additional 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. 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 pyrrolidone (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 18°C (65°F) and 26°C (80°F) will ensure proper cure. Temperatures below 18°C (65°F) will slow cure speed; above 26°C (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 reasonably constant throughout the year.

STORAGE AND SHELF LIFE

Shelf life of MA530 adhesive and activator is 6 months from day of shipment from ITW Plexus. Shelf life is based on continuous storage between 12°C (54°F) and 23°C (74°F). Shelf life is based on continuous storage between 12°C (54°F) and 23°C (74°F). Long term exposure above 23°C (74°F) will reduce the shelf life of these materials. Prolonged exposure of activators, including cartridges that contain activators, above 37°C (98°F) quickly diminishes the reactivity of the product and should be avoided. Shelf life can be extended by refrigeration 15°C - 18°C (60°F - 65°F). These products should never be frozen. **For expiry date see label.**

ITW PLEXUS, Unit 3, Shipton Way, Express Business Park, Northampton Road
Rushden, Northants, NN10 6GL, UK
TEL: +44(0)870 458 7588 FAX: +44(0)870 458 9077
e-mail: technical@itwplexus.co.uk

Notes

1. ITW Plexus 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 23°C (74°F).
3. Fixture Time: Varies with bond gap and ambient temperature. At 23°C (74°F) MA530 reaches lap shear values of approximately 3.4 (500) and 6.9 (1000) MPa (psi) in 90 and 160 minutes respectively at a 0.75mm (0.03 in.).
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.
7. For optimal bond gaps 0.75 mm (0.03 in.) is recommended. Below this value, consult with an ITW Plexus representative.
8. Exterior applications require the use of coatings or primers that inhibit oxidation of the metals.
9. All machines dispensing Plexus should be stainless steel and have shrouds where applicable.

NOTE: All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Plexus makes no representations or warranties of any kind concerning this data. Due to variance of storage, handling and application of these materials, ITW Plexus cannot accept liability for results obtained.