PLEXUS®

Adhesive Selector Guide
North America

ITW

Introduction

The Plexus range of advanced structural and semi-structural adhesives help optimize manufacturing and assembly techniques and processes.

We collaborate closely with our customers so we have a deep understanding of all aspects of their bonding requirements. This results in providing superior technical service and developing innovative solutions to address customer needs.

Our wide range of advanced adhesives are suitable for bonding the vast majority of composites, thermoplastics, metals, and dissimilar substrates. Plexus adhesives create long-lasting, durable bonds that withstand harsh environmental exposure and manage stress with minimal or no surface preparation.

Our commitment to quality is delivered in every adhesive system we produce, providing our customers with highly reliable and consistent products.

ITW Performance Polymers is ISO 9001 and 14001 certified. Our products are registered under EU REACH regulations where applicable.

Technical Support

Comprehensive Test Programs
Developed to ensure how products perform on customer substrates and service conditions.

Technical and Sales Support
Guidance in product selection, application, and dispensing methods and equipment.

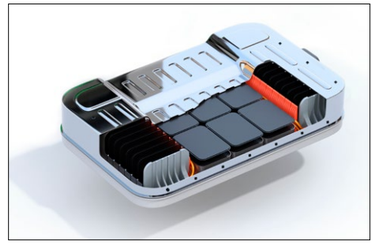
Global Reach

Our strategic partners ensure that customers can access Plexus products and services around the world. Our team understands modern manufacturing and supply chain challenges, and are always available to demonstrate our range of adhesives and consult on your bonding applications.

EV Battery & Electronics

In Asia-Pacific, EMEA, and North America, manufacturers of electric vehicle batteries, consumer and industrial electronics, and electrical equipment choose Plexus structural adhesives or Insulcast® potting and encapsulation products for applications in protection, insulation, thermal management, and structural bonding. Our offering of globally available products meets customer specifications and provides performance and durability.

- Selection of chemistries to meet customer requirements.
- Globally available products & support.
- Meets industry specifications & standards.
- Excellent fatigue resistance.
- Outperforms mechanical fastening.
- Manages stress, heat, and impact for increased safety & durability.



Transportation

Bus, Truck, and Rail manufacturers choose Plexus for a variety of applications. Plexus adhesives are used to bond floors, interior panels and dividers, modular interior furnishings, roof assemblies, and underfloor supports in rail wagons; and composite body panels, front and rear light assemblies, grilles, and end-caps in bus and truck. Plexus' industry-leading technology is popular for its reliability and ease of use.

- Rapid cure at room-temperature reduces production time.
- Resistant to oil & diesel.
- Bonds dissimilar substrates
- Excellent fatigue resistance.
- Outperforms mechanical fastening.
- Increases design freedom.

Wind Energy

Plexus structural adhesives have increased the efficiency of production processes and improved design capabilities used by wind turbine manufacturers around the world. Commonly used to manufacture wind-blades, nacelle housings, and lightning suppression systems, Plexus structural adhesives create high-strength bonds to virtually all polyester resins and gel-coats, as well as most thermoplastics and metals.

- Chemically fuses composites.
- Superior bond strength and fatigue resistance.
- Decrease production costs.
- Increases throughput.
- Distributes stress to improve durability.

Marine

Plexus structural adhesives are a mainstay of the global marine industry. From ski-boats o mega-yachts, more than three-quarters of boat-builders count on Plexus' 1:1 and 10:1 marine formulations for a variety of applications like deck-to-hull, liners, composite stringers, and more. Plexus adhesives require little or no preparation, reducing processing, and speeding up production.

- Fast, easy assembly.
- Hand mixing possible.
- Gap-filling up to 2in.(50mm).
- Excellent fatigue resistance.
- Chemically fuses composites.
- Superior bond strength & fatigue resistance.
- Distributes stress to improve durability.

General Industrial

Plexus adhesive systems are a 'go-to' solution for modern manufacturing requirements, providing durable and long-lasting assemblies using 'greener' processes that produce sleek designs that are aesthetically pleasing for the end-user. Whether for underground pipes, commercial signs, sporting goods, or spas and bath fixtures, manufacturers choose Plexus adhesives for consistency, reliability, and the support they receive with every product.

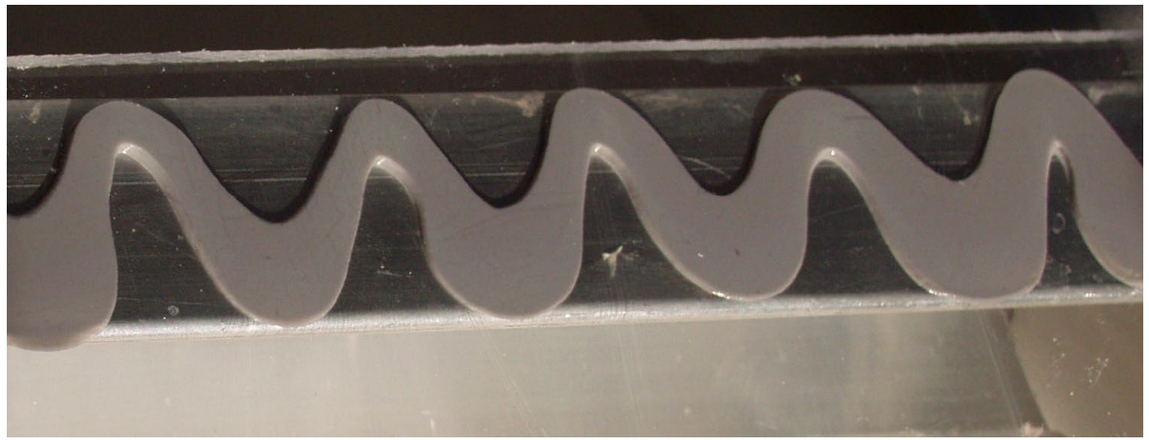
- Reduced process steps.
- Bonds a wide variety of materials.
- Bonds dissimilar substrates.
- Excellent fatigue resistance.
- Variety of working & fixture times to meet customerprocess requirements..
- Increases design freedom.

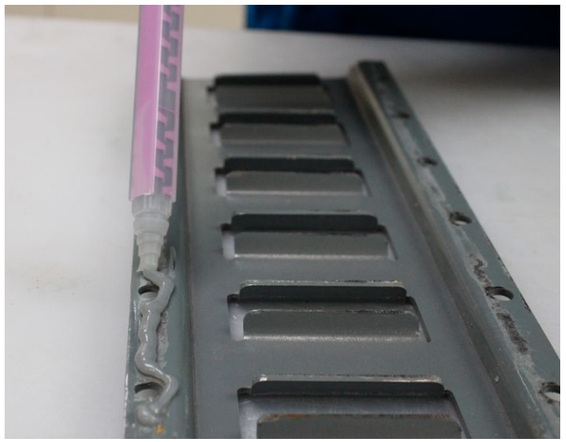
Plexus 10:1 Structural Adhesives

Product	Description	Chemistry	Mix Ratio	Working Time min.	Fixture Time[1] min.	Tensile Strength (psi)	Tensile Elongation %	Max. Gap Fill (in.)	Part A Viscosity, cP x 10^3	Part B Viscosity, cP x 10^3	Metals: Aluminum	Metals: Cold Rolled Steel	Metals: Galvanized / Zinc Coated	Metals: Galvaneal	Metals: Stainless Steel	Metals: Powder coat	Coatings: E-Coat	Coatings: ABS and ASA	Plastics: Acrylics	Plastics: Polyamides (Nylons)	Plastics: Polycarbonate	Plastics: Rigid PVC	Plastics: Gelcoats	Composites: Fiberglass	Composites: RTM	Composites: SMC	Other: Rubbers
MA205HV	Primerless to Aluminum Ultrafast Fixture Times	MMA	10:1	3 - 5	7 - 8	1.980 - 2,420	15 - 30	0.25	100 - 130	15 - 50	●	●		◐*	●	●	●	●	●	◐	●	●	●	●	●	◐	●
MA320	Low Modulus, High Elongation, High Toughness	MMA	10:1	8 - 12	27 - 30	1,800 - 2,200	30 - 60	0.375	135 - 175	30 - 70	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	●
MA420	All Purpose, High Strength, High Toughness	MMA	10:1	4 - 6	15 - 17	2,430 - 2,970	20 - 40	0.375	100 - 125	35 - 80	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	●
MA420W	Rapid Curing, High Strength, High Toughness	MMA	10:1	3 - 4	8 - 12	2,610 - 3,190	20 - 40	0.375	80 - 100	50 - 80	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	●
MA420FS	Ultrafast for Robotic Applications	MMA	10:1	1 - 2	3 - 4	1,260 - 1,520	5 - 15	0.125	100 - 125	35 - 80	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	●
MA422	All Purpose, High Toughness	MMA	10:1	17 - 20	35 - 40	1,260 - 1,520	40 - 70	0.125	100 - 130	35 - 70	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	●
MA425	All Purpose, High Toughness	MMA	10:1	28 - 30	80 - 85	2,565 - 3,315	30 - 50	0.375	100 - 125	35 - 70	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	
MA830	Primerless to Aluminum, High Strength	MMA	10:1	4 - 6	15 - 17	2,610 - 3,190	10 - 20	0.50	80 - 120	35 - 80	●	●		◐*	●	●	●	●	●		◐	●	●	●	●	◐	●
MA832	Primerless to Aluminum, High Strength	MMA	10:1	12 - 14	55 - 60	2,790 - 3,410	20 - 40	0.50	80 - 130	35 - 80	●	●		◐*	●	●	●	●	●		◐	●	●	●	●	◐	●
MA1020	Low Odor, Low Shrink	MMA	10:1	5 - 6	8 - 10	1,305 - 1,595	10 - 20	0.375	100 - 130	35 - 80	◐*	◐*			◐*	●	●	●	●		●	●	●	●	●	◐	
MA2015 WHITE	UV Stable White, Highly Thixotropic	MMA	10:1	15 - 18	25 - 30	2,875 - 3,600	21 - 54	1.5	180 - 220	35 - 70						●	●	●	●		◐	●	●	●	●	◐	
MA2030 WHITE	UV Stable White, Highly Thixotropic	MMA	10:1	32 - 35	50 - 55	3,098 - 3,359	36 - 77	1.5	180 - 220	35 - 70						●	●	●	●		◐	●	●	●	●	◐	
MA2045 WHITE	UV Stable White, Highly Thixotropic	MMA	10:1	45 - 50	90 -95	2,200 - 2,900	36 - 77	1.5	180 - 220	35 - 70						●	●	●	●		◐	●	●	●	●	◐	
MA2230	Low Shrink, Highly Thixotropic, High Toughness	MMA	10:1	40 - 42	75 - 77	2,160 - 2,640	40 - 80	1.5	180 - 220	35 - 70	●	●			●	●	●	●	●		◐	●	●	●	●	◐	
MA2245	Low Shrink, Highly Thixotropic, High Toughness	MMA	10:1	40 - 50	80 - 85	2,160 - 2,640	40 - 80	1.5	180 - 220	35 - 70	●	●			●	●	●	●	●		◐	●	●	●	●	◐	

1. Varies with bond gap, joint size, assembly weight, and ambient temperature. Present values were measured at 74°F (23°C).

● Preferred ◐ Good * Use PC120 cleaner/conditioner **Blank** Not Recommended or call ITW Performance Polymers





Plexus 1:1 Structural Adhesives

Product	Description	Chemistry	Mix Ratio	Working Time min.	Fixture Time[1] min.	Tensile Strength (psi)	Tensile Elongation %	Max. Gap Fill (in.)	Part A Viscosity, cP x 10^3	Part B Viscosity, cP x 10^3	Metals: Aluminum	Metals: Cold Rolled Steel	Metals: Galvanized / Zinc Coated	Metals: Galvaneal	Metals: Stainless Steel	Coatings: Powder coat	Coatings: E-Coat	Plastics: ABS and ASA	Plastics: Acrylics	Plastics: Polyamides (Nylons)	Plastics: Polycarbonate	Plastics: Rigid PVC	Plastics: Gelcoats	Composites: Fiberglass	Composites: RTM	Composites: SMC	Other: Rubbers
MA300	All Purpose, High Strength	MMA	1:1	3 - 6	10 - 13	3,510 - 4,290	20 - 40	0.125	40 - 70	40 - 70	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	●
MA310	All Purpose, High Strength	MMA	1:1	15 - 18	38 - 40	4,410 - 5,390	20 - 40	0.125	40 - 70	40 - 70	◐*	◐*			◐*	●	●	●	●	◐	◐	●	●	●	●	◐	●
MA530	Highly Thixotropic, High Toughness	MMA	1:1	30 - 40	75 - 85	2,500 - 3,500	90-160	0.70	130 - 180	160 - 215	◐*	◐*			◐*	●	●	●	●	◐	◐	●	●	●	●	◐	
MA560-1	Highly Thixotropic, High Toughness	MMA	1:1	55 - 70	120 - 130	2,500 - 3,100	> 130	1.00	145 - 185	170 - 205	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	
MA590	Highly Thixotropic, High Toughness	MMA	1:1	90 - 105	135 - 140	1,880 - 2,750	> 130	1.5	140 - 230	165 - 230	◐*	◐*			◐*	●	●	●	●		◐	●	●	●	●	◐	
MA8105 GB	Low Odor, High Toughness, Primerless to Metal	MMA	1:1	3 - 6	12 - 14	3,285 - 4,015	5 - 10	0.5	70 - 140	50 - 120	●	●	●	●	●	●	●	●	●	●	◐	●	●	●	●	◐	●
MA8110 GB	Low Odor, High Toughness, Primerless to Metal	MMA	1:1	8 - 12	33 - 36	3,285 - 4,015	25 - 45	0.5	40 - 90	40 - 70	●	●	●	●	●	●	●	●	●	●	◐	●	●	●	●	◐	●
MA8120 GB	Low Odor, High Toughness, Primerless to Metal	MMA	1:1	18 - 22	50 - 60	2,907 - 3,630	30 - 60	0.5	40 - 80	80 - 120	●	●	●	●	●	●	●	●	●	●	◐	●	●	●	●	◐	●
H4110	Primerless to Metal, Elastic, Low Shrink, Non-Flammable	Hybrid	1:1	8 - 12	65 - 75	800 - 1,000	150	NA	40 - 80	40 - 80	●	●	◐	●	●	●	●	◐	◐	◐	◐	◐	◐	●	●	◐	

1. Varies with bond gap, joint size, assembly weight, and ambient temperature. Present values were measured at 74°F (23°C).

● Preferred ◐ Good * Use PC120 cleaner/conditioner **Blank** Not Recommended or call ITW Performance Polymers

Product Recommendations

Plexus two-component adhesive systems are designed to be applied between 65-80°F. Lower temperatures will slow cure speed, higher temperatures will increase cure speed. The viscosity of both components is affected by temperature. For consistent dispensing, it is best practice to maintain relatively constant application temperatures throughout the year.

For maximum bond strength, ensure the joint is completely filled, and mate the parts within the specified working time. After joining, the parts must remain undisturbed until the fixture time has elapsed.

Clean-up should be done before the adhesive is cured. In case of cured material, carefully remove adhesives by mechanical means, and clean as needed. Spills should be cleaned-up with absorbent material, and handled as flammable material. (See Plexus SDS and follow local regulations for disposal).

Plexus adhesives can be applied with hand-held applicators or pumping equipment through a static mixer. Our Technical Service teams should be consulted regarding wetted components of dispensing equipment. Refer to equipment manuals for preventative maintenance, cleaning, and shut-down procedures. Contact ITW Performance Polymers for further information.

Plexus product shelf-life ranges from 7-13 months. Consult product TDS for specific information. Shelf-life is based on continuous storage at 55-77°F. Prolonged exposure to higher temperatures (>95°F) quickly reduces product reactivity and should be avoided. Products should never be frozen.

Consult product SDS for detailed safety & handling information. Product SDS are available at: itwpp.com

Additional Information

Working Time – The time period that begins when the two adhesive components are mixed and ends when the adhesive is no longer usable for bonding. Values shown are tested at 75°F.

Fixture Time – The time required after joining for the adhesive to develop cohesive strength of 500psi at 75°F.

Tensile Strength – The ultimate cohesive strength of the material tested according to ASTM D638.

How to use Plexus products!

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