

Adhesive Selector Guide EMEA





Introduction

ITW Performance Polymers provides a broad range of advanced structural and semi-structural adhesives that 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 broad range of adhesives are suitable for bonding the vast majority of composites, thermoplastics, metals, and dissimilar substrates.

Plexus MMA and Hybrid adhesives create long-lasting, durable bonds that withstand harsh environmental exposure and manage stress with minimal or no surface preparation.

Devcon epoxy adhesives provide excellent adhesion to the toughest of metals. They deliver excellent peel and shear strength while offering extreme chemical and environmental resistance.

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.

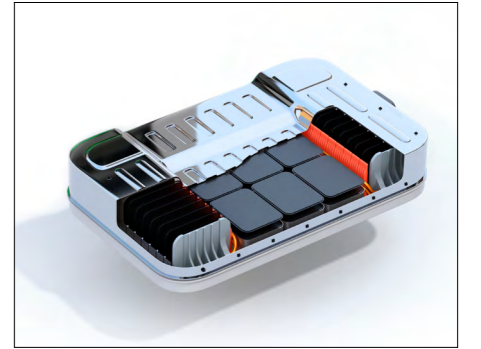
Global Reach

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 1:1 MMA Structural Adhesives

Plexus 1:1 MMA Structural Adhesives																					Metals			Coatings		Plastics					Composites			Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Product	Description	Chemistry	Mix Ratio	Working Time min.	Fixture Time¹ min.	Tensile Strength (MPa)	Tensile Elongation %	Max. Gap Fill (mm)	Part A Viscosity, cP x 10³	Part B Viscosity, cP x 10³	Aluminium		Cold Rolled Steel		Galvanized / Zinc Coated		Galvaneal		Stainless Steel		Powder coat		E-Coat		ABS and ASA		Acrylics		Polyamides (Nylons)		Polycarbonate		Rigid PVC		Gelcoats		Fiberglass		RTM		SMC		Rubbers																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

1 Varies with bond gap, joint size, assembly weight, and ambient temperature. Present values were measured at 74°F (23°C). ● Preferred ● Good * Use PC-120 cleaner / conditioner **Blank** Not Recommended or call ITW Performance Polymers

Plexus 10:1 MMA Structural Adhesives

Plexus 10.1 MMA Structural Adhesives											Metals					Coatings		Plastics					Composites			Other			
Product	Description	Chemistry	Mix Ratio	Working Time min.	Fixture Time ¹ min.	Tensile Strength (MPa)	Tensile Elongation %	Max. Gap Fill (mm)	Part A Viscosity, cP x 10 ³	Part B Viscosity, cP x 10 ³	Aluminium	Cold Rolled Steel	Galvanized / Zinc Coated	Galvaneal	Stainless Steel	Powder coat	E-Coat	ABS and ASA	Acrylics	Polyamides (Nylons)	Polycarbonate	Rigid PVC	Gelcoats	Fiberglass	RTM	SMC	Rubbers		
MA320	Low Modulus, High Elongation, High Toughness	MMA	10:1	8 - 12	27 - 30	12.4 - 15.2	30 - 60	9.5	135 - 175	30 - 70	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉	●	
MA420	All Purpose, High Strength, High Toughness	MMA	10:1	4 - 6	15 - 17	18.8 - 20.5	20 - 40	9.5	100 - 125	35 - 80	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉	●	
MA422	All Purpose, High Toughness	MMA	10:1	17 - 20	35 - 40	16.8 - 20.5	40 - 70	9.5	100 - 130	35 - 70	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉	●	
MA425	All Purpose, High Toughness	MMA	10:1	28 - 30	80 - 85	17.7 - 21.6	30 - 50	9.5	100 - 125	35 - 70	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉		
MA550	UV Stable White	MMA	10:1	39 - 42	70 - 75	14.9 - 16.4	20 - 40	10	130 - 160	30 - 70	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉		
MA830	Primerless to Aluminum, High Strength	MMA	10:1	4 - 6	15 - 17	18.0 - 22.0	10 - 20	12.7	80 - 120	35 - 80	●	●		☉*	●	●	●	●	●		☉	●	●	●	●	●	☉	●	
MA832	Primerless to Aluminum, High Strength	MMA	10:1	12 - 14	55 - 60	19.2 - 23.5	20 - 40	12.7	80 - 130	35 - 80	●	●		☉*	●	●	●	●	●		☉	●	●	●	●	●	☉	●	
MA920	Low Odour, High Toughness	MMA	10:1	4 - 6	16 - 17	16.4 - 20.1	30 - 50	9.5	80 - 120	35 - 80	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉		
MA1020	Low Odour, Low Shrink	MMA	10:1	5 - 6	8 - 10	9.0 - 11.0	10 - 20	9.5	100 - 130	35 - 80	☉*	☉*			☉*	●	●	●	●		●	●	●	●	●	●	☉		
MA1025	Low Odour, Low Shrink	MMA	10:1	20 - 25	40 - 45	9.7 - 12.4	90 - 110	25.4	180 - 220	35 - 70	☉*	☉*			☉*	●	●	●	●		☉	●	●	●	●	●	☉		
MA3940	Use with craze-sensitive plastics	MMA	10:1	12 - 15	25 - 30	13.8 - 17.2	125 - 175	9.5	135 - 175	30 - 70						☉	☉	☉	☉		☉	☉	☉	☉					
MA3940LH	All-purpose fast-setting adhesive	MMA	10:1	3 - 6	7 - 8	13.1 - 15.8	35 - 65	4.0	120 - 160	30 - 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 PC-120 cleaner / conditioner **Blank** Not Recommended or call ITW Performance Polymers

Plexus 1:1 Polyurethane/Hybrid Structural Adhesives

Product	Description	Chemistry	Mix Ratio	Working Time min.	Fixture Time min.	Tensile Strength (MPa)	Tensile Elongation %	Max. Gap Fill (mm)	Part A Viscosity, cP x 10 ³	Part B Viscosity, cP x 10 ³	Metals										Coatings		Plastics					Composites			Other
											Aluminium	Cold Rolled Steel	Galvanized / Zinc Coated	Galvaneal	Stainless Steel	Powder coat	E-Coat	ABS and ASA	Acrylics	Polyamides (Nylons)	Polycarbonate	Rigid PVC	Gelcoats	Fiberglass	RTM	SMC	Rubbers				
PU2105	Primerless to Metal, No Odor, Low Shrink, Non-Flammable	PU	1:1	3 - 4	25 - 30	28	5	NA	60 - 90	60 - 90	●	●	◐	●	●	●	●	◐	◐	◐	◐	◐	●	●	◐						
H4110	Primerless to Metal, Elastic, Low Shrink, Non-Flammable	Hybrid	1:1	8 - 12	65 - 75	6.5	150	NA	40 - 80	40 - 80	●	●	◐	●	●	●	●	◐	◐	◐	◐	◐	●	●	◐						

● Preferred ◐ Good * Use PC-120 cleaner / conditioner **Blank** Not Recommended or call ITW Performance Polymers

Product Recommendations

Plexus two-component adhesive systems are designed to be applied between 18-27°C. 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.

ITWPP Technical Services should be consulted regarding wetted components of dispensing equipment. Refer to equipment manuals for preventative maintenance, cleaning, and shut-down procedures. Contact ITWPP 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 12-25°C. Prolonged exposure to higher temperatures (>35°C) quickly reduces product reactivity and should be avoided. Products should never be frozen.

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

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 24°C.

Fixture Time – The time required after joining for the adhesive to develop cohesive strength of 0.35 MPa at 24°C

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



How to use Plexus products!

Devcon Epoxy Adhesives

Devcon Epoxy Adhesives												Metals								Plastics					Composites						
Product	Colour	Mix Ratio (vol./vol.)	Mixed Viscosity, cP * 10 ³	Working Time ¹ min.	Fixture Time ² min.	Functional Cure ² , min.	Lap Shear Strength, (MPa)	Tensile Elongation (%)	Peel Strength, (N/cm)	Max. Dry Service Temp.(°C)	Dielectric Strength, (KV/mm)	Aluminium	Cast Iron	Copper	Cold-Rolled Steel	Coated Metal	Plated Metal	Brass	Stainless Steel	ABS	Acrylic	Polyamide (Nylon)	Polycarbonate	Polyester (PET, PBT)	Vinyl (PVC)	Gel-Coat	Fiberglass	Phenolics	RTM	SMC	
One Minute™ Epoxy Gel	Translucent	1:1	70	45 sec.	1	30 - 45	11.0	1	3.5 - 5.3	-40 - 93	19.3	☐	●	☐	●	●		☐	☐			☐		☐							
5 Minute Epoxy	Amber	1:1	10	3 - 6	10 - 15	45 - 60	13.0	1	3.5 - 5.3	-40 - 93	19.3	☐	●	☐	●	●		☐	☐					☐							
2 Ton Epoxy	Clear	1:1	8	8 - 12	30 - 35	120	15.5	1	3.4 - 5.3	-40 - 93	23.6	☐	●	☐	●	●	☐	☐						☐							
Epoxy Plus 25	Grey	1:1	70	25	120	1440	19	20	35 - 45	-40 - 93	21.6	●			●			☐		☐	☐	☐		☐	●	●				☐	
HP250	Straw	2:1	105	65	360	1440	22	25	53 - 70	-55 - 121	19.3	☐*						☐*		☐	☐	☐		☐	☐	☐				☐	

1. Based on 28g mass @ 23°C. 2. Tested at 23°C. ● Preferred ◐ Good * Use PC-120 cleaner / conditioner **Blank** Not Recommended or call ITW Performance Polymers

Product Recommendations

Surface Preparation: Devcon epoxies work best on clean surfaces. Surfaces should be free of heavy deposits of grease, oil, dirt or other contaminants, or cleaned with industrial cleaning equipment such as vapour phase degreasers or hot aqueous baths. Abrading or roughing the surfaces of metals will increase the microscopic bond area significantly and optimize the bond strength.

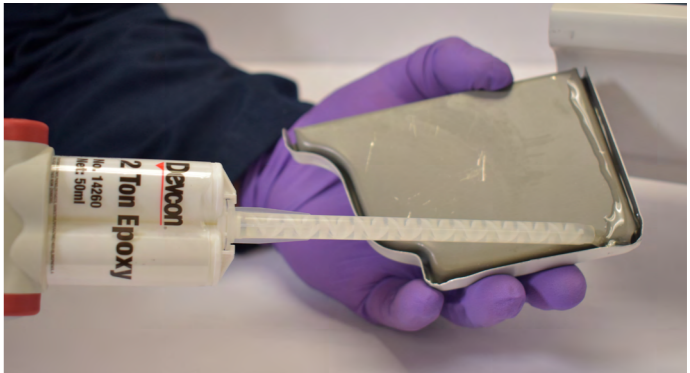
Mixing: Cartridges should be used with an applicator gun and a static mixer. The static mixer nozzle allows the material to be thoroughly mixed when dispensed, so it can be applied directly to the surfaces being bonded. Please note: Once the product

goes beyond its working time, the nozzle must be thrown away and a new nozzle used for further dispensing.

Application: Apply mixed epoxy directly to one surface in an even film or as a bead. Assemble the parts within the recommended working time. Maintain firm contact between the parts to ensure good contact of the epoxy between the mating parts, clamping may optimize this part of the process. A small volume of epoxy should flow out the edges to show there is adequate gap filling. For very large gaps, apply the adhesive to both surfaces and spread to cover the entire area, or make a bead pattern, that will allow material to flow throughout the joint.

Let bonded assemblies stand for the recommended functional cure time before handling. They are capable of withstanding processing forces at this point, but should not be dropped, shocked, or heavily stressed.

Storage / Shelf Life: Devcon epoxy adhesives should be stored in a cool, dry place when not used for a long period of time. A shelf life of 1 year from date of manufacture can be expected when stored at room temperature (22°C) in their original containers. For product information, visit itwpp.com



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