Permabond®
Engineering Adhesives

COMPOSITE BONDING ADHESIVES



Permabond offers a wide range of different adhesive technologies for bonding composites.

Whether you require a rapid cure in seconds or several hours to assemble parts, Permabond can help you find a bonding solution.

A global team of technical, sales, and distribution professionals are specially trained to ensure they can assist you in selecting the most appropriate standard or custom formulated product for your unique application. Our team looks forward to hearing from you.

FEATURES & BENEFITS

Existing Permabond adhesive users already enjoy many of the following benefits over mechanical fasteners:

- Cost savings
- Component weight reduction
- Improved stress reduction
- Improved appearance
- Faster manufacturing process
- Eliminates pre-drilling & prevents leaks
- Helps prevent corrosion



IDEAL FOR BONDING:

- ABS
- Alucobond
- Acrylic
- Aluminum
- Carbon Fiber
- Copper
- Ferrite
- FRP/GRP/Gelcoat
- Glass
- Laminate
- Magnet
- PCB
- Phenolic
- Polycarbonate*
- Polyethylene*
- Polypropylene*
- PVC
- Silicon
- Steel
- Tungsten
- Zinc

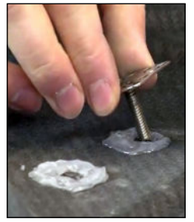
*special grades only on untreated

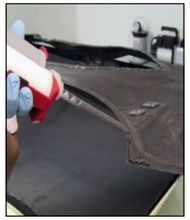
...and many more!

Adhesives for Composites

Here is a small selection of our most popular adhesive grades suitable for use in a range of composite bonding applications. If you can't see exactly what you require, please contact our technical advisors with information about your application and your particular requirements and we will make a recommendation. The Permabond team provides support through the design phase, sample trials and production line integration. Whether you require technical support, custom formulations or small batch production, please contact us.









Permabond two part epoxy is used to bond fasteners to a carbon fibre car bonnet and Permabond PT326 bonds the 2 skins of a carbon fibre car bonnet together.

Technical Information		737	ES569	ET515	ET5401	ET5428	ET5429	MT382	MT3821	PT326	PT328	TA4246	TA4210	TA4810
Features		Toughened, impact resistant single part cyanoacrylate.	Thick epoxy paste, ideal for bonding carbon fibre where vertical application or gap filling is required.	Flexible epoxy with excellent impact and vibration resistance. Ideal for use on sensitive composites (such as foams).	High temperature resistant epoxy. Ideal for applications where clamping or jigging during heat cure is not possible.	Toughened epoxy with rapid strength development.	Toughened epoxy ideal for applications where high temperatures may be experienced.	Low viscosity, self levelling, soft, slightly flexible modified epoxy product.	Highly flexible modified epoxy adhesive with a Shore A hardness of 50.	2-Part polyurethane adhesive ideal for bonding composites such as carbon fibre and interior trim	As PT326 but with longer pot life.	Toughened, rapid cure, good adhesion to a wide variety of surfaces.	Toughened, gap filling, 1:1 mix ratio, easy to apply. Ideal for bonding clips, hinges and brackets.	Toughened, gap filling, 1:1 mix ratio, easy to apply. Ideal for bonding clips, hinges and brackets.
Colour		Black	Black	Clear / colourless	Grey	Charcoal-black or cream version available	Charcoal black	Charcoal black	Charcoal black	Grey	Grey	Amber	Cream	Cream
Viscosity (mPa.s = cP)		2000-4000	250,000-500,000 Thixotropic Paste	Mixed: 12,000-22,000	Thixotropic paste	Thixotropic paste	Thixotropic paste	Mixed: 13,000-30,000	Thixotropic paste	Mixed: 3500-7000	Mixed: 3500-7000	28,000	Mixed: 45,000	Mixed: 175,000
Maximum gap fill (mm) in		(0.5) 0.02	(5.0) 0.2	(2.0) 0.08	(5.0) 0.2	(5.0) 0.2	(5.0) 0.2	(5.0) 0.2	(5.0) 0.2	(5.0) 0.2	(5.0) 0.2	(0.5) 0.02	(4.0) 0.16	(2.0) 0.08
Handling time (steel)		15-20 sec.	Full strength 60 minutes at 150°C	20-30 min.	60-90 min.	30-45 min.	6-10 hrs	105-120 min.	60-90 min.	60-90 min.	90-120 min.	2-4 min.	30-35 min.	20-30 min.
Full strength (cured at 23°C)		24 hours		72 hours	4-7 days	24-48 hrs	72 hrs	72 hrs	>72 hrs	4-5 days	4-5 days	24 hrs	24 hrs	24 hrs
Shear strength (MPa) psi	Steel	(19-23) 2800-3300	(27-41) 4000-6000	(8-12) 1160-1740	(20-30) 2900 -4350*	(28-34) 4060-4930	(23-28) 3335-4350	(4-7) 600-1000	(4-7) 600-1000	(12-20) 1700-2900	(12-18) 1700-2600	(33-35) 4800-5100	(23-25) 3300-3600	(21-28) 3000-4000
	FRP-glass polyester		N/A	(3-5) 435-725	(6-8) 900-1200*	(>9) Substrate Failure >1305	(>6) Substrate Failure >870	(5-7) 400-700	(5-7) 400-700	(5-7) 400-700	(5-7) 400-700	(6-8) 600-1,200	(5-7) 400-700	(4-6) 600-900
	FRP-glass epoxy		(9-11) 1300-1600	(4-6) 580-870	(19-23) 2800-3300*	(24-28) 3480-4060	(18-22) 2610-3190	(5-7) 400-700	(5-7) 400-700	(12-14) 1700-2000	(12-14) 1700-2000	(9-11) 1300-1600	(9-11) 1300-1600	(13-15) 1900-2200
	Carbon fibre		(10-12) 1450-1700	(8-12) 1160-1740	(22-24) 3200-3500	(>25)Substrate Failure >3625	(>25)Substrate Failure >3625	(6-8) 600-1,200	(6-8) 600-1200	(9-11) 1300-1600	(9-11) 1300-1600	(18-22) 2600-3200	(14-16) 2000-2300	(9-11) 1300-1600
Peel strength (N/25mm) PIW		(40-60) 9-13	(100-150) 23-34	(100-250) 33-55	(140-160) 31-35*	(150-250) 33-55	(150-230) 33-51	(140-160) 31-36	(140-160) 31-36	(150-170) 33-38	N/A	(150-180) 33-40	(200-300) 44-67	(70-90) 15-20
Service temperature range (°C)°F		(-55 to +120) -65 to +250	(-40 to +180) -40 to +356	(-55 to +100) -65 to 215	(-40 to +140,180 peak) -40 to +284, 356 peak	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250
Availability		Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide	Europe, Middle East	Americas

** Product cured at 80°C for 1 hour.*

Permabond bonds composites in many industry sectors:

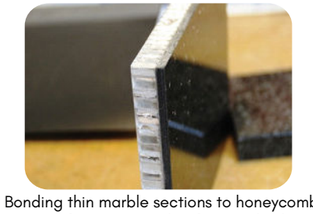
- *Aerospace*
- *Automotive*
- *Boat Building*
- *Buildings*
- *Buses*
- *Partitioning*
- *Shopfitting*
- *Sports Equipment*
- *Street Furniture*
- *Trains & Trams*
- *Wind Turbines*







Application: Bonding marble honeycomb panels



- Bonding thin marble sections to honeycomb composite for use as worksurfaces in kitchens and bathrooms on yachts, motor homes, caravans and aeroplanes.
- If colour-matched product is required, Permabond's chemists can produce custom formulations.

Adhesive used: Permabond ET5429



Application: Bonding aircraft seat trays

Bonding ABS, plastic laminate and aluminium seat tray construction together. ET515 was selected due to its excellent impact and vibration resistance, quick cure and most importantly it doesn't attack any of the sensitive substrate materials.

Benefits of Permabond ET515

- Rapid-curing
- Non-flammable
- Flexible, good impact resistance
- Easy application process
- Clear appearance gives an aesthetically good finish.

Adhesive used: Permabond ET515

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Engineering Adhesives

ADHESIVES FOR COMPOSITES

Permabond adhesives and sealants are available worldwide through authorized distributors.

Contact us for technical support or a distributor in your area!



PERMABOND.COM

Authorized distributor stamp:

info.americas@permabond.com **US** **732 868 1372**
info.europe@permabond.com **UK** **+44 (0)1962 711661**
info.asia@permabond.com **Asia** **+86 21 5773 4913**

The information given and the recommendations made herein are based on our experience and are believed to be accurate. No guarantee as to, or responsibility for, their accuracy can be given or accepted, however, and no statement herein is to be treated as a representation or warranty. In every case we urge and recommend that purchasers, before using any product, make their own tests to determine, to their own satisfaction, its suitability for their particular purposes under their own operating conditions. Always refer to current product technical datasheet for most recent and accurate technical information.