

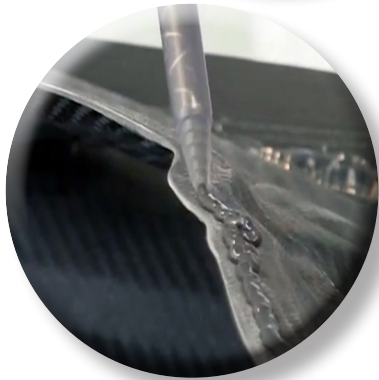
Adhesives for Composites

Permabond manufactures and supplies engineering adhesives throughout industries using composites for lightweight product design. Whether you require a rapid cure in seconds or several hours to assemble parts, Permabond can help you find a bonding solution.



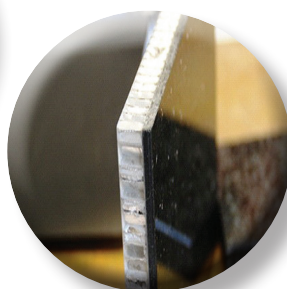
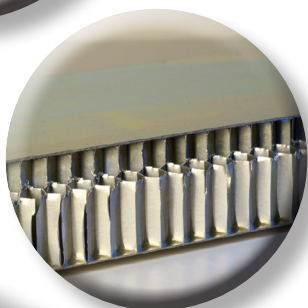
Permabond bonds composites in many industries:

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



Advantages of using adhesives instead of mechanical fasteners:

- Cost savings
- Component weight reduction
- Improved stress distribution
- Improved appearance
- Faster manufacturing process
- Eliminates pre-drilling & prevents leaks
- Helps prevent corrosion
- Wider choice of substrate materials
- Better noise and vibration absorption
- Low shrinkage = no show-through marks



Ideal for bonding:

- ABS
- Acrylic
- Alucobond
- Aluminium
- Carbon Fibre
- Epoxy
- FRP/GRP/Gelcoat
- Nomex
- Nylon
- PEEK
- Phenolic
- Polycarbonate
- Polyethylene
- Polypropylene
- Polystyrene
- Polyurethane
- PVC / UPVC
- Rubber
- SMC
- Steel
- Vinyl
- Wood

+Many more materials

Typical Applications

Sandwich panel applications:

Application: Bonding marble topped honeycomb panels



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

Adhesive used: **Permabond ET5429**

Application: Bonding aluminium sandwich panels



- Bonding aluminium sheet to honeycomb for lightweight, high strength sandwich panels used in motorsport, marine, aerospace and construction.

Adhesive used: **Permabond ET505**

**Application: Sandwich panel
lightweight edge filler**
- Ask Permabond for
more information



Typical applications for composites adhesives:

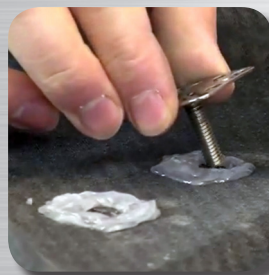
- Bonding automotive exterior panels
- Bonding metal fasteners to automotive parts
- Sandwich panels - aluminium & Nomex honeycomb to marble, aluminium, acrylic top skin
- Honeycomb - lightweight edge filler
- ABS/plastic composites for indestructible aircraft and public transport seat trays and interiors
- Train interior walls - fire retardant adhesives
- Bonding prosthetic limbs - high impact resistance
- Bonding/sealing vessels tanks & vats
- Sports equipment, kite surf board - edge bonding, golf club heads onto shafts

Automotive body panels:



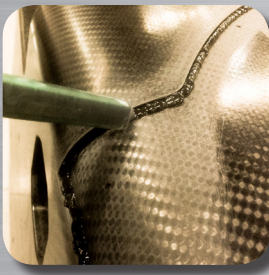
Permabond ET500

used to bond fasteners to a carbon fibre car bonnet



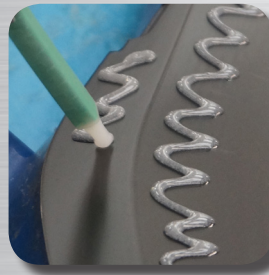
Permabond PT326

used to bond the 2 skins of a carbon fibre car bonnet



Permabond ET5429

used for high strength bonding of carbon fibre body panels



Permabond TA4610

used to bond polyethylene & glass filled polycarbonate body panels



Permabond ET500

used to bond bonnet latch to carbon fibre car bonnet

Aircraft & public transport interiors:

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, and rapid cure. Adhesive used: **Permabond ET515**



Application:

Bonding train interior panels

Bonding laminate panels with spreadable, flame retardant epoxy adhesives.

Adhesive used:

Permabond ET5272

Product Data

For full technical details, please refer to our technical data sheets available at www.permabond.com. This is just a small selection of products that Permabond has to offer. We have an extensive range of different products and the ability to custom formulate (free of charge) to match your specific requirements.

Product	Colour	Chemical Type	Key Features	Maximum gap fill (mm)	Handling Time (at room temperature)	Shear Strength (Steel) MPa	Bonding Performance								Durability		
							Aluminium	Carbon Fibre	FRP Glass/Epoxy	FRP Glass/Polyester	Polyethylene	Polypropylene	Rubber	Steel	Water Resistance	Chemical Resistance	Thermal Resistance
737	Black	CA	<ul style="list-style-type: none"> Fast cure (seconds) Rubber toughened 	0.5	5-35 secs	19-23	••	••	••	•	•••	•••	•••	•••	•	••	••
ES569		ES	<ul style="list-style-type: none"> Non-slump Gap filling 	5.0	60 mins (full strength)*	27-41	•••	•••	•••	•••	-	-	-	•••	•••	•••	•••
ET500	Clear	ET	<ul style="list-style-type: none"> Fast cure Colourless/clear 	2.0	5-8 mins	12-18	••	••	••	••	•‡	•‡	-	••	•••	••	•
ET505	Orange	ET	<ul style="list-style-type: none"> Long pot life Ideal for spreading 	2.0	3-5 hours	18-21	•••	••	••	••	•‡	•‡	-	••	•••	••	•
ET515	Clear	ET	<ul style="list-style-type: none"> Flexible Colourless / clear 	2.0	20-30 mins	8-12	•••	••	••	••	•‡	•‡	-	••	•••	••	•
ET5272	Black	ET	<ul style="list-style-type: none"> Fire retardant Long pot life 	2.0	12 hours	>15	•••	••	••	••	•‡	•‡	-	••	•••	••	••
ET5401		ET	<ul style="list-style-type: none"> High temperature resistance 	5.0	60-90 mins	20-30	•••	•••	••	••	•‡	•‡	-	•••	•••	••	•••
ET5428	Cream	ET	<ul style="list-style-type: none"> Toughened Fast cure 	5.0	30-45 mins	18-22	•••	•••	••	••	•‡	•‡	-	••	•••	••	••
ET5429	Black	ET	<ul style="list-style-type: none"> Toughened Long pot life 	5.0	6-10 hours	18-22	•••	•••	••	••	•‡	•‡	-	••	•••	••	••
MT382		MT	<ul style="list-style-type: none"> Flexible Fast cure 	0.5	105-120 mins	4-7	••	••	••	••	•‡	•‡	-	•	•••	••	••
MT3821	Black	MT	<ul style="list-style-type: none"> Flexible Long pot life 	5.0	60-90 mins	4-7	••	••	••	••	•‡	•‡	-	•	•••	••	••
PT326		PU	<ul style="list-style-type: none"> Fast cure Ideal for carbon fibre 	5.0	60-90 mins	12-20	••	•••	•••	•••	•‡	•‡	-	••	•••	••	••
PT328	Black	PU	<ul style="list-style-type: none"> Slower curing version of PT326 	5.0	90-120 mins	12-18	••	•••	•••	•••	•‡	•‡	-	••	•••	••	••
TA4204		Clear	TA	<ul style="list-style-type: none"> Crystal clear Very fast cure 	3.0	5-10 mins	18-20	•••	•••	••	•••	•‡	•‡	-	••	••	••
TA4246	Orange	TA	<ul style="list-style-type: none"> No-mix system Fast cure 	0.5	2-4 mins	33-35	•••	•••	••	•••	•‡	•‡	-	•••	•••	•••	••
TA4210	Cream	TA	<ul style="list-style-type: none"> Gap filling Easy to apply 	4.0	30-35 mins	23-25	•••	•••	••	•••	•‡	•‡	-	•••	••	••	••
TA4610	White	TA	<ul style="list-style-type: none"> Polyolefin bonder No need to prime 	1.0	40-50 mins	PP: 5-8	•	•	•	•	•••	•••	•••	EPDM	•	••	••

*Heat cure required †with POP Primer ‡Surface requires flame, corona or plasma pretreatment PP=Polypropylene

CA- Cyanoacrylate PU- Polyurethane
 ES- Epoxy Single Part TA- Toughened Acrylic
 ET- Epoxy-Two Part MT- Modified Two-Part Epoxy

Permabond Adhesives

ISO 9001:2015 Certified
"Our Science ... Your Success"

Adhesives for: Design • Manufacturing • Assembly • Maintenance • Repair & Overhaul

Permabond's history of developing and manufacturing engineering adhesives spans **four decades** and three continents. Today, Permabond Engineering Adhesives Ltd (Europe & Asia) and Permabond LLC (Americas) provide technological solutions to engineers all over the world, with offices and facilities in America, Asia and Europe, backed by a high-tech **ISO 9001:2015** certified production plant in Europe.



- **Technical** – Our chemists and technicians are available to provide application assistance, custom formulation, in-house prototype testing, joint product development programs and much more.

- **Training** – Permabond's knowledgeable sales group will provide your staff with the information they need to maximize the efficiencies, cost savings, and safety benefits Permabond products generate.

- **Sales** – From preliminary project appraisals and product needs assessments through to process reliability analysis, Permabond's knowledgeable sales group will support you from product concept through to production.

This brochure contains information on our most popular products, if you don't see exactly what you need, or would like assistance in selecting the best product for your application, please contact us:

www.permabond.com

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