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.

Permabond® Adhesive Features & Benefits
Existing Permabond adhesive users already enjoy many of the following benefits over 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 Fiber
- Ceramic & Stone
- Composite
- Ferrite
- FRP & GRP
- Glass
- Laminate
- Nylon
- Phenolic
- Polycarbonate
- Polyethylene*
- Polypropylene*
- Polystyrene
- SMC
- Steel
- Wood
- Zinc

+Many more materials

*Special grades only on untreated
### Composite Bonding Product Data

**Technical Information**

<table>
<thead>
<tr>
<th>Features</th>
<th>737</th>
<th>ES569</th>
<th>ES5681</th>
<th>ET515</th>
<th>ET5401</th>
<th>ET5428</th>
<th>ET5429</th>
<th>MT382</th>
<th>MT3821</th>
<th>PT321</th>
<th>PT326</th>
<th>PT328</th>
<th>TA4246</th>
<th>TA4810</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Clear / colorless</td>
<td>Charcoal black</td>
<td>Charcoal black</td>
<td>Charcoal black</td>
<td>Charcoal black</td>
<td>Charcoal black</td>
<td>Charcoal black</td>
<td>Charcoal black</td>
<td>Grey</td>
<td>Grey</td>
<td>Grey</td>
</tr>
<tr>
<td>Viscosity (mPa.s = cP)</td>
<td>2,000-4,000</td>
<td>250,000-500,000</td>
<td>40,000-60,000</td>
<td>Mixed: 12,000-22,000</td>
<td>Thixotropic paste</td>
<td>Thixotropic paste</td>
<td>Thixotropic paste</td>
<td>Mixed: 13,000-30,000</td>
<td>Thixotropic paste</td>
<td>Mixed: 3,500-7,000</td>
<td>Mixed: 3,500-7,000</td>
<td>Mixed: 3,500-7,000</td>
<td>23,000</td>
<td>Mixed: 17,500</td>
</tr>
<tr>
<td>Maximum gap fill (mm) in</td>
<td>(0.5)</td>
<td>(5-0)</td>
<td>0.2</td>
<td>(0.5)</td>
<td>0.08</td>
<td>(0.5)</td>
<td>0.2</td>
<td>(0.5)</td>
<td>0.2</td>
<td>(0.5)</td>
<td>0.2</td>
<td>(0.5)</td>
<td>0.2</td>
<td>(0.5)</td>
</tr>
<tr>
<td>Handling time (s)</td>
<td>15-20 sec.</td>
<td>Full strength 60 minutes at 150°C</td>
<td>Full strength 35 minutes at 155°C</td>
<td>20-30 min.</td>
<td>Handling 1-1.5 hr. 23°C</td>
<td>Full strength 1 hr. 80°C</td>
<td>30-45 min.</td>
<td>6-10 hrs.</td>
<td>105-120 min.</td>
<td>60-90 min.</td>
<td>10-15 min.</td>
<td>60-90 min.</td>
<td>90-120 min.</td>
<td>2-4 min.</td>
</tr>
<tr>
<td>Full strength (cured at 23°C)</td>
<td>24 hours</td>
<td>(27-41)</td>
<td>4,000-6,000</td>
<td>(10-35)</td>
<td>1,200-1,750</td>
<td>2,900-4,500*</td>
<td>(20-30)</td>
<td>2,100-3,200</td>
<td>2,600-3,300</td>
<td>(24-32)</td>
<td>2,600-3,300</td>
<td>600-1,000</td>
<td>724 hrs.</td>
<td>&gt;72 hrs.</td>
</tr>
<tr>
<td>Shear strength (MPa) psi</td>
<td>Steel (1-9)</td>
<td>2,800-3,100</td>
<td>4,000-6,000</td>
<td>4,400-5,100</td>
<td>(0-8)</td>
<td>400-700</td>
<td>600-900</td>
<td>1,500-1,900</td>
<td>1,000-1,450</td>
<td>1,400-1,850</td>
<td>700-1,000</td>
<td>700-1,000</td>
<td>700-1,000</td>
<td>600-1,000</td>
</tr>
<tr>
<td>Peel strength (N/25mm)</td>
<td>(0-12)</td>
<td>2,450-2,900</td>
<td>3,000-3,500</td>
<td>(6-8)</td>
<td>400-500</td>
<td>3,200-3,500</td>
<td>(16-20)</td>
<td>1,900-2,300</td>
<td>2,500-3,000</td>
<td>(6-8)</td>
<td>2,800-3,300</td>
<td>600-1,200</td>
<td>800-1,200</td>
<td>800-1,200</td>
</tr>
<tr>
<td>Carbon fiber</td>
<td>(0-8)</td>
<td>600-900</td>
<td>1,450-1,700</td>
<td>(0-12)</td>
<td>2,600-3,200</td>
<td>2,700-3,500</td>
<td>(6-8)</td>
<td>600-1,200</td>
<td>600-1,200</td>
<td>(6-8)</td>
<td>600-1,200</td>
<td>500-1,000</td>
<td>33-38</td>
<td>33-38</td>
</tr>
<tr>
<td>Service temperature range (°C)</td>
<td>(-55 to +120)</td>
<td>(-40 to +120) peak</td>
<td>(-18 to +100)</td>
<td>(-55 to +100)</td>
<td>(-40 to +120) peak</td>
<td>(-40 to +120) peak</td>
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</tbody>
</table>

**Application**: Bonding aircraft seat trays. Bonding ABS, plastic laminate, and aluminum 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.

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

Permabond bonds composites in many industry sectors including:

- Aerospace
- Automotive
- Boat Building
- Buildings
- Buses

- Partitioning & Shop fitting
- Sports Equipment
- Street Furniture
- Trains & Trams
- Wind Turbines

**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:

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- **General Enquiries** +44(0)1962 711661
- **Deutschland** 0800 101 3177
- **France** 0805 111 388
- **US** - 732-868-1372

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