Permabond®
Engineering Adhesives

ADHESIVES FOR DEFENSE INDUSTRIES



Permabond offers a wide range of high-performance industrial adhesives for use within the defense industry around the world.

Our products support a broad spectrum of applications and markets, including aerospace, transport, munitions, marine, and telecommunications.

Permabond specializes in advanced structural adhesives engineered with specific performance features such as low outgassing, high-temperature and high-impact resistance, lightweight/low-density formulations, fire-retardant properties, and the ability to bond difficult or dissimilar substrate materials.

TYPICAL APPLICATIONS:

- Bonding Kevlar® materials for body armour and helmets
- Composite bonding for impact resistant panels on lightweight vehicles
- Communications equipment
- Fast bonding of wiring looms to aircraft fuselage
- Bonding rubber flooring/grip treads inside tanks and other vehicles
- Drones – bonding lightweight composites and also nylon 12
- Sealing oxygen supply pipework for fighter jets







IDEAL FOR BONDING:

- Acrylic (Perspex® and Plexiglas® – clear adhesives available)
- Carbon fiber/graphite composite
- Kevlar® aramid fibre material
- Nylon- including glass filled nylon 6, nylon 6, 6 and 12
- Glass
- Polypropylene, polyethylene, PTFE and other hard-to-bond plastics
- Metals – including stainless steel, zinc, aluminum, etc...
- Rubber – including EPDM, silicone, nitrile etc.

*Kevlar® is a registered trademark of E. I. du Pont de Nemours and Company.
*Perspex® is a registered trademark of Perspex International Limited.
*Plexiglas® is a registered trademark of Röhm GmbH.

Permabond® Engineering Adhesives

Many Permabond products offer fast cure and rapid strength development to minimize downtime, while eliminating the need for surface preparation on difficult substrates.

Product	Type	Typical Application	Features & Benefits	Viscosity	Shear Strength (Steel)	Temperature Range °C (°F)
MH052	Anaerobic Threadsealant	Sealing oxygen pipelines for fighter jets	Oxygen approved anaerobic pipe sealant	2rpm: 65,000 mPa.s (cP) 20rpm: 25,000 mPa.s (cP)	10 MPa 1450 psi	-55 to 150 (-65 to 300)
712	Cyanoacrylate	Bonding rubber gaskets, seals, valve seatings for military grade equipment, and suitable for underwater applications	Excellent water and heat resistance used to bond a variety of materials	100 mPa.s (cP)	19-24 N/mm² (2760-3480 psi)	-55 to 120 (-65 to 250)
737	Cyanoacrylate	Magnet/ferrite bonding	Single part, moisture-cure cyanoacrylate adhesive, high impact resistance, flexibility, and durability under thermal shock/vibration	3000 mPa.s (cP)	19-23 N/mm² (2800-3300 psi)	-55 to 120 (-65 to 250)
825	Cyanoacrylate	Bonding sensors, connectors, and electronic components	Exceptional adhesion to metals and plastics with high-temperature resistance up to 200°C, and thermal aging durability	125 mPa.s (cP)	15-20 N/mm² (2180-2900 psi)	-55 to 200 (-65 to 390)
910	Cyanoacrylate	Wing spar bonding (holding in place during riveting process)	Aerospace company approved single part adhesive that is easy to use, fast curing, and eliminates the need for awkward clamping during riveting	80 mPa.s (cP)	23-29 N/mm² (3300-4200 psi)	-55 to 90 (-65 to 195)
130UV	Light Cure Cyanoacrylate (Dual Cure)	Bonding and sealing electronic components in military-grade PCBs and sensor assemblies	Cures instantly under UV light for fast, tack-free bonds and cures via moisture in shadowed areas	200 mPa.s (cP)	12-17 N/mm² (1740 psi – 2470 psi)	-55 to 120 (-65 to 250)
ET5422	Two-part epoxy	Composite bonding of panels and aircraft vehicle/ship interior components	Fully toughened two part epoxy, giving high shear and peel strength as well as excellent impact and vibration resistance	Thixotropic Paste	30-38 N/mm² (4350-5510 psi)	-55 to 120 (-65 to 250)
ET5424	Two-part epoxy	Aerospace structural bonding for ultimate performance in high temperature applications	Ultra high strength performance with excellent thermal resistance	Thixotropic Paste	20-25 N/mm² (2900-3630 psi)	-55 to 230 (-65 to 450)
ET5428	Two-part epoxy	Fast curing, high strength, impact resistant composite bonding adhesive.	Exceptional high temperature performance. Low hazard rating (contains no CMRs.)	Thixotropic Paste	28-34 N/mm² (4060-4930)	-55 to 120 (-65 to 250)
ET5441	Two-part epoxy	Bonding heat sinks and structural components in high-power military electronics	Low outgassing, passes UL94 HB, thermally conductive	Thixotropic Paste	20-25 N/mm² (2900-3630 psi)	-55 to 200 (-65 to 390)
TA4246	Toughened Surface-Activated Acrylic Adhesive	Bonding wiring harnesses inside fuselage, structural bonding of interiors of tanks/planes/ships/submarines	Aerospace company approved no-mix structural acrylic, fast strength development, easy to apply, and high structural strength performance	28,000 mPa.s (cP)	33-35 N/mm² (4800-5100 psi)	-40 to 120 (-40 to 250)
TA4550	Toughened Acrylic Adhesive	Bonding Kevlar® for body armour and helmets, bonding nylon drone components	High strength structural acrylic adhesive for bonding to nylon and a wide variety of materials	Mixed: 100,000 mPa.s (cP) Thixotropic	27-30 N/mm² (3920-4350 psi)	-55 to 100 (-65 to 210)
TA4611	Toughened Acrylic Adhesive	Bonding polyethylene and polypropylene components in rugged drone housings, field radios, and portable defense electronics	High impact strength and chemical resistant two-part adhesive for low surface energy plastics without need for primers	Mixed: 21,500 mPa.s (cP)	11 N/mm² (1600 psi)	-55 to 100 (-65 to 210)

Permabond®
Engineering Adhesives

ADHESIVES FOR DEFENSE INDUSTRIES

Application: Military Aircraft Breathing Systems

Permabond MH052 is used to seal valves on the cockpit oxygen supply of a military aircraft, such as the Harrier GR 5/10.



- Withstands thermal shock and differential expansion and contraction stresses.
- Easy to apply, reliable, and passes oxygen tests.

Application: Bonding Body Armour and Helmets

Permabond TA4550 is applied to nylon and composite components in the assembly of body armor and helmets.



- Improved durability and high strength.
- Improved impact resistant bonds.

Permabond's approvals: Military Specifications (MIL-SPEC), CID, and ASTM

Permabond's Military Specified (MIL Spec, CID, and ASTM) range of adhesives are ideal for general maintenance and repair of army vehicles, aircraft, warships, and submarines. These products are suited to tasks such as sealing nuts and bolts to prevent vibration loosening, fixing bearings, and creating form-in-place gaskets of any shape which is perfect for quick, on-the-go repairs.

Scan for Military Specifications and Standards

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.