

# Aerospace Adhesives

*Application: Bonding wing spars*



Permabond 910 methyl-based cyanoacrylate adhesive is approved by Boeing (to spec BMS5-36D Type I). Lightweight aluminium wing spars are bonded during construction of aircraft wings.

## **Benefits of Permabond methyl cyanoacrylate:**

- Rapid-curing
- Non-flammable
- 100% solids
- Easy application process
- Good adhesion to metals
- Single-part so no weighing or mixing required

*Adhesive used: Permabond 910*



Permabond offers a range of adhesive technologies suitable for bonding a wide variety of substrate materials. Adhesive use is widespread both inside aircraft and out; for fixtures and fittings as well as mechanical and structural applications.

Adhesives are ideal for aircraft as they reduce the need for mechanical fasteners (which add to the aircraft weight) and allow greater freedom of substrate material choice. Adhesive bonding is a very effective alternative to welding and results in an attractive finished appearance, increased strength performance and better stress distribution.



Replacing welding processes with adhesive bonding can produce savings in labor and equipment and increase production output.

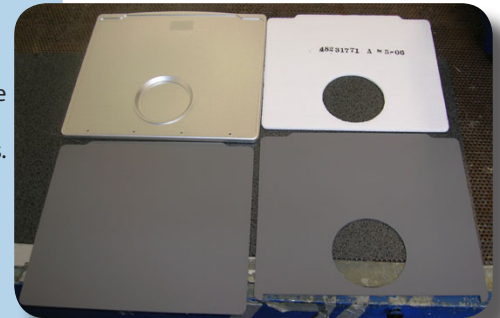
*Boeing  
Approval*

*Application: Bonding aircraft seat trays*

Bonding ABS, plastic laminate and aluminium seat tray construction together. ET515 is the perfect choice because of its full compatibility with a wide variety of sensitive substrates. Production speeds are increased with the quick cure, and finished results have excellent impact and vibration resistance.

## **Benefits of Permabond ET515**

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



*Application: Aircraft landing gear*



Threadlocker is required for nuts and bolts on aircraft landing gear.

- Excellent resistance to water, fuel etc.
- Helps lubricate threads to make tightening easier and less likely to cross-thread
- Prevents corrosion, making it easier to service

*Adhesive used: Permabond A113 or MMI15*



*Application: Repair of interior trim*

Permabond 102 ethyl cyanoacrylate is widely used as a general purpose interior repair adhesive. It is ideal for bonding or replacing damaged or worn fixtures and fittings. It carries Boeing BMS5-36D Type II Grade 1.

- Rapid cure - bonds in seconds
- Bonds virtually all materials
- Single-part - no weighing or mixing required
- Resistant to cleaning chemicals

*Adhesive used: Permabond 102*



# Product selector

Typical Applications	Features	Cure method	Viscosity (mPa.s) cP	Gap fill (mm) in	Handling time	Temperature range (°C) °F	Availability
Bonding aircraft seat trays	<b>Permabond ET515</b> 2-part epoxy with flexibility,, excellent impact and vibration resistance	2-part 1:1 mix ratio room temperature cure	20,000	(2.0) 0.08	15-25 minutes	(-55 to +80) -65 to +180	Worldwide
Locking of nuts and bolts throughout the aircraft	<b>Permabond A113</b> Anaerobic threadlocking adhesive - prevents vibration loosening	No mix, cures in contact with metal surfaces in a tightly fitting gap.	500	(0.12) 0.005	15 minutes	(-40 to +150) -40 to +300	Europe, Asia, Australia
	<b>Permabond MM115</b> Anaerobic threadlocking adhesive - prevents vibration loosening		1,300	(0.15) 0.006	10 minutes	(-54 to +150) -65 to +300	Americas & Asia
Repairing damaged interior trim, sign bonding, small repair jobs	<b>Permabond 102</b> General purpose Boeing approved cyanoacrylate adhesive Permabond 102 meets Boeing Specification <b>BMS5-36D Type II Grade 1</b>	No mix, room temperature moisture cure	80	(0.15) 0.006	5 - 15 seconds	(-55 to +80) -65 to +180	Worldwide
Aircraft wing spar bonding	<b>Permabond 910</b> Rapid curing Boeing approved methyl cyanoacrylate Permabond 910 meets Boeing Specification <b>BMS5-36D Type I</b>	No mix, room temperature moisture cure	80	(0.15) 0.006	10-15 seconds	(-55 to +90) -65 to +200	Worldwide
Bonding overhead cabin lockers	<b>Permabond TA4310</b> Structural acrylic, excellent impact and vibration resistance. Rapid strength development minimises clamping time	2-part 1:1 mix ratio room temperature cure	Paste	(2.0) 0.08	10 - 15 minutes	(-55 to +120) -65 to +250	Europe, Asia, Australia
	<b>Permabond TA4810</b> Structural acrylic, excellent impact and vibration resistance. Rapid strength development minimizes clamping time	2-part 1:1 mix ratio room temperature cure	95,000	(0.5) 0.02	10 - 15 minutes	(-40 to 120) -40 to 250	Americas & Asia

**If you can't see the exact product you are looking for, or need more in depth technical information, Permabond's technical team would be more than happy to help.**

## Contact Permabond

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### Permabond Worldwide

Wherever your manufacturing or R&D site may be located, Permabond representatives can be called upon to assist you. We have an extensive network of trained distributors worldwide.



Permabond's sales engineers are available to assess your production line and find the best possible turnkey adhesive solution that will result in production efficiencies.

The experienced team of Permabond chemists is on hand to help you with custom formulations and fulfilling your technical data requests.



# Permabond<sup>®</sup>

Engineering Adhesives

*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.*