

### Features & Benefits

- 💧 Excellent adhesion to stainless steel
- 💧 EU Food Contact 10/2011 compliant
- 💧 FDA 175.105 compliant
- 💧 High shear strength
- 💧 Excellent temperature resistance

### Description

PERMABOND® ET5163 is a lightly thixotropic, 2-part epoxy adhesive designed to be compliant to both FDA 175.105 and EU food contact regulations 10/2011. ET5163 is designed primarily for bonding of stainless steel in food contact applications, however this will bond a variety of other substrates including steel and aluminium.

### Physical Properties of Uncured Adhesive

	ET5163A	ET5163B
Chemical composition	Epoxy Resin	Modified Amine
Appearance	Off-white	White
Viscosity @ 25°C	25,000 mPa.s (cP)	19,000 mPa.s (cP)
Specific Gravity	1.2	1.4

### Typical Curing Properties

Mix ratio by volume	2:1
Maximum gap fill	2 mm <i>0.08 in</i>
Gel time @23°C 7.5g mixed	70 mins
Working strength @23°C	12 hour
Working strength @60°C	30 mins
Full cure @23°C	72 hours*
Full cure @60°C	1 hour

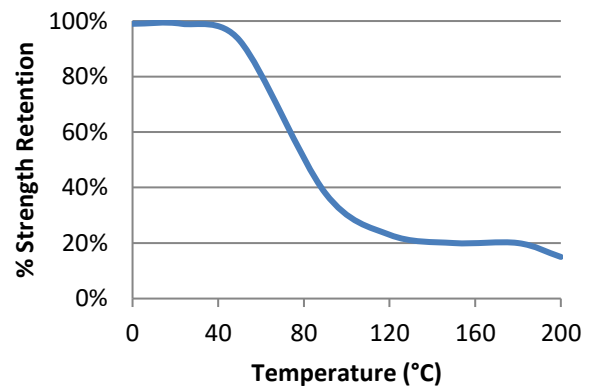
\*For best results we recommend curing at 60°C.

### Typical Performance of Cured Adhesive

Shear strength* (ISO4587) cured 1 hour @ 60°C	Stainless Steel: 18-23 N/mm <sup>2</sup> (2610-3335 psi) Mild Steel: 14-18 N/mm <sup>2</sup> (2030-2610 psi) Aluminium: 15-20 N/mm <sup>2</sup> (2175-2900 psi)
Hardness (ISO868)	80-90 Shore D

\*Strength results will vary depending on the level of surface preparation and gap.

### Hot Strength



"Hot strength" shear strength tests performed on mild steel. Fully cured specimens conditioned to pull temperature for 30 minutes before testing at temperature.

ET5163 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed. The minimum temperature the cured adhesive can be exposed to is -55°C (-67°F) depending on the materials being bonded.

The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full-scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purpose under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.

## Additional Information

This product is not recommended for use in contact with strong oxidizing materials.

Information regarding the safe handling of this material may be obtained from the safety data sheet.

Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene.

**This Technical Datasheet (TDS) offers guideline information and does not constitute a specification.**

## Surface Preparation

Surfaces should be clean, dry and grease-free before applying the adhesive. Use a suitable solvent (such as acetone or isopropanol) for the degreasing of surfaces. Some metals such as aluminium, copper and its alloys will benefit from light abrasion with emery cloth (or similar), to remove the oxide layer.

## Directions for Use

1. Dual cartridges:
  - a) Insert the cartridge into the application gun and guide the plunger into the cartridge.
  - b) Remove the cartridge cap and dispense material until both sides are flowing.
  - c) Attach the static mixer to the end of the cartridge and begin dispensing the material.
2. Apply material to one of the substrates.
3. Join the parts. Parts must be joined within the usable pot life of mixing the two epoxy components.
4. Large quantities and/or higher temperature will decrease the usable life or pot life.
5. Apply pressure to the assembly by clamping until handling strength is obtained.
6. Full cure will be obtained after 3 days at 23°C (74°F). Heat can be used to accelerate the curing process.

**NB. Exercise caution when mixing large quantities due to exothermic reaction.**

### Video Links

Surface preparation:

<https://youtu.be/8CMOMP7hXjU>



Two-part epoxy directions for use:

<https://youtu.be/GRX1RyknYqc>



## Storage & Handling

Storage Temperature	5 to 25°C (41 to 77°F)
---------------------	------------------------

[www.permabond.com](http://www.permabond.com)

• UK: 0800 975 9800

• General Enquiries: +44 (0)1962 711661

• US: 732-868-1372

• Asia: + 86 21 5773 4913

[info.europe@permabond.com](mailto:info.europe@permabond.com)

[info.americas@permabond.com](mailto:info.americas@permabond.com)

[info.asia@permabond.com](mailto:info.asia@permabond.com)

The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full-scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purpose under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.

No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.