

### Features & Benefits

- Exceptional electrical conductivity
- Easy to use – no mixing required
- High temperature resistance

### Description

**PERMABOND® ES5902** is a single-part epoxy paste designed to be used in circuit assembly applications where electrical conductivity is required. ES5902 can be applied by stencil printing. ES5902 is ideal for bonding a wide range of materials including metals, glass and composites.

### Typical Performance of Cured Adhesive

Shear strength* (ISO4587)	Stainless Steel 22 N/mm <sup>2</sup> <b>(3190 psi)</b>
Volume resistivity	0.001 Ω cm
Glass transition (Tg)	135°C <b>(275°F)</b>
Coefficient of thermal expansion	Below Tg: 53 ppm/°C Above Tg: 168 ppm/°C
Service temperature	-40 to +180°C <b>(-40 to 356°F)</b>
Hardness (ISO868)	85-95 Shore D

### Physical Properties of Uncured Adhesive

Chemical composition	Epoxy Resin
Appearance	Silver
Viscosity @ 25°C	100,000 to 200,000 mPa.s <b>(cP)</b>
Specific gravity	4.1

### Typical Curing Properties

Maximum gap fill	0.5 mm <b>0.02 in</b>
Cure speed (oven) *	150°C <b>(300°F)</b> : 45 minutes

*\*Actual cure times will depend on the time it takes for the adhesive to reach this temperature - for example, large assemblies or a crowded oven will require longer to reach full cure. Alternative, quicker methods of curing include induction, hotplates, infrared lamps and hot-air guns.*

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 (SDS).

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.**

## Storage & Handling

Storage Temperature	2 to 7°C (35 to 45°F)
---------------------	-----------------------

## 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) Apply the adhesive to one surface and avoid entrapping air.
- 2) Assemble parts applying sufficient pressure to ensure the adhesive spreads to cover the entire bond area.
- 3) Use a jig / clamp to prevent parts moving during cure.
- 4) It is advisable not to disturb the joint until the adhesive is fully cured.
- 5) Cure with heat

<p>Supplied by: <a href="http://www.hitek-ltd.co.uk">www.hitek-ltd.co.uk</a> +44 (0)1724 851678</p>	 <p><b>HITEK</b> ELECTRONIC MATERIALS LTD</p>
---	--

[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.