PERMABOND® ET5453

Two-Part Epoxy

Provisional Technical Datasheet

Features & Benefits

- Adhesion to a wide variety of substrates
- Full cure at room temperature
- Easy to apply
- Electrically conductive paste
- Good thermal conductivity

Description

PERMABOND® ET5453 is a two-part, 9:1 mixable epoxy adhesive of paste consistency. The main feature of this product is its excellent electrical conductivity with a resistance of less than 10 Ohms.

Physical Properties of Uncured Adhesive

	ET5453A	ET5453B
Chemical composition	Epoxy Resin	Polyamine Hardener
Appearance	Silver-copper	Amber
Viscosity @ 25°C	Thick paste	550 mPa.s *(cP)*
Specific gravity	3.0	1.0

Typical Curing Properties

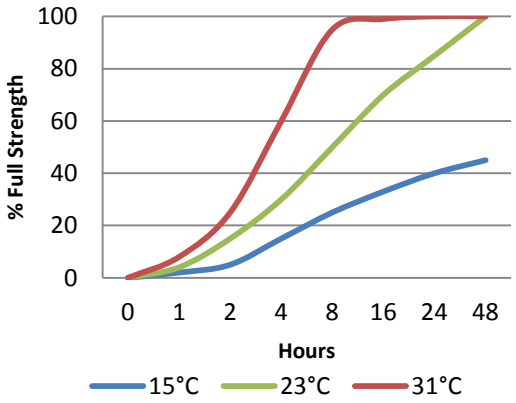
Mix ratio	By volume: 100:33 By weight: 9:1
Maximum gap fill	2 mm *0.08 in*
Usable / pot life @23°C	50-60 minutes
Handling time @23°C	2-3 hours
Working strength @23°C	6-8 hours
Full cure @23°C	48 hours

Typical Performance of Cured Adhesive

Shear strength (mild steel)* (ISO4587)	>6 N/mm² *(>870 psi)*
Hardness (ISO868)	>80 Shore D
Thermal conductivity	2 W/(m.K)

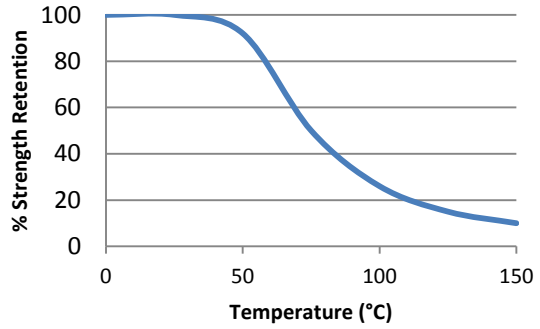
**Strength results will vary depending on the level of surface preparation and gap.*

Strength Development



Graph shows typical strength development of bonded components. An increase of 8°C in temperature will halve the cure time. Lower temperatures will result in a slower cure time.

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.

ET5453 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 -40°C (-40°F) depending on the materials being bonded.

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.

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. Measure or weigh material in correct ratio.
2. Mix resin and hardener thoroughly.
3. Apply adhesive taking care not to entrap air.
4. Join the parts. Parts must be joined within 50-60 minutes of mixing the two epoxy components.
5. Large quantities and/or higher temperature will decrease the usable life or pot life.
6. Apply pressure to the assembly by clamping for 2-3 hours or until handling strength is obtained.
7. Full cure will be obtained after 48 hours at 23°C (73°F). Heat can be used to accelerate the curing process.

Storage & Handling

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

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