# Technical data sheet

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|---|---|
| Product: | ET5428 |
| Manufacturer: | PERMABOND ENGINEERING ADHESIVES |
| Product group: | KLEBSTOFF |
| Article group: | 2-K KLEBSTOFF |
| Download: | 11.08.2025 |

## PERMABOND® ET5428 BLACK

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# PERMABOND® ET5428 BLACK

*Two-Part Epoxy*

Technical Datasheet

## Features & Benefits

- Ideal for bonding composite materials
- Easy to apply
- High shear and peel strength
- Rapid cure speed
- High temperature resistance
- Colour matched for carbon fibre bonding

## Description

**PERMABOND® ET5428 BLACK** is a thixotropic two-part adhesive with excellent resistance to impact and vibration. The controlled flow properties as well as its ease of mixing and application, enables the adhesive to be used where gap filling is required. Permabond® ET5428 BLACK has been found to provide exceptional performance even at elevated temperatures.

Permabond® ET5428 BLACK has been specifically formulated for use in applications requiring toughness and high strength and shows special benefits in the construction of composite assemblies.

## Physical Properties of Uncured Adhesive

| | ET5428 BLACK A side | ET5428 BLACK B side |
|---|---|---|
| Chemical composition | Epoxy Resin | Polyamine Hardener |
| Appearance | White | Black |
| Mixed appearance | Charcoal black | |
| Viscosity @ 25°C | 20rpm: 115,000 mPa.s *(cP)* 2rpm: 300,000 mPa.s *(cP)* | 20rpm: 200,000 mPa.s *(cP)* 2rpm: 1,100,000 mPa.s *(cP)* |
| Specific gravity | 1.1 | 1.1 |

## Typical Curing Properties

| | |
|---|---|
| Mix ratio | 2:1 by volume 2:1 by weight |
| Maximum gap fill | 5 mm *0.2 in* |
| Usable / pot life @23°C 10g mixed | 10-20 mins |
| Handling time | 23°C: 30-45 mins |
| Working strength | 23°C: 1 hour 60°C: 15 minutes |
| Full cure | 23°C: 24-48 hours 60°C: 1 hour |

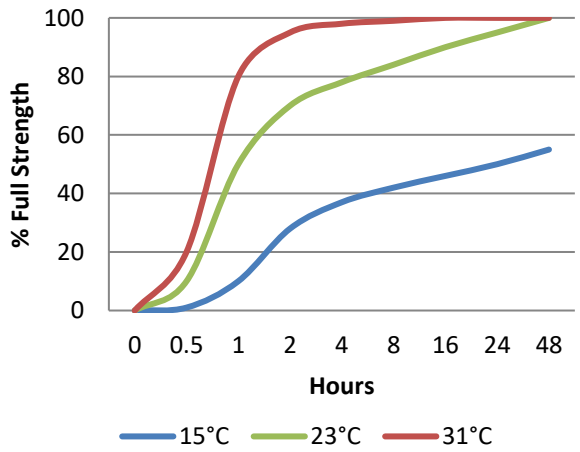
## Typical Performance of Cured Adhesive

| | |
|---|---|
| Shear strength* (ISO4587) | Mild steel: 28-34 N/mm² *(4060-4930psi)* Aluminium: 22-28 N/mm² *(3190-4060psi)* Stainless Steel: 29-35 N/mm² *(4205-5075psi)* Carbon Fibre: >25 N/mm² ** SF *(>3625psi)* FRP Glass/Polyester: >9 N/mm²** SF *(>1305psi)* FRP Glass/Epoxy: 24-28 N/mm² *(3480-4060psi)* PEEK: 4-5 N/mm² *(580-725psi)* PA6 30% filled: 3-4 N/mm² *(435-580psi)* |
| Peel strength (aluminium) (ISO4578) | 150-250 N/25mm *(33-55 PIW)* |
| Impact strength (ASTM D-950) | 30-40 KJ/m² |
| Hardness (ISO868) | 65-75 Shore D |
| Elongation at break (ISO37) | <5% |
| Glass transition temperature Tg | 50-60°C *(122-140°F)* |
| Dielectric strength | 15-25 kV/ mm |

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

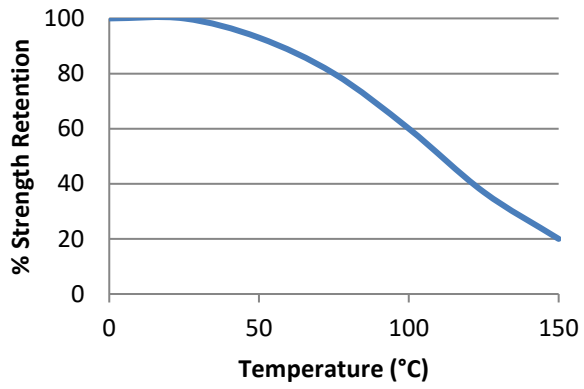
***SF Denotes substrate failure*

### 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.*

ET5428 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. 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 24-48 hours at 23°C (73°F). Heat can be used to accelerate the curing process.

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

## Storage & Handling

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

## Video Links

Surface preparation:
https://youtu.be/8CMOMP7hXjU

Two-part epoxy directions for use:
https://youtu.be/GRX1RyknYqc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