PERMABOND® UV685

UV-Curable Adhesive

Technical Datasheet

Features & Benefits

- Cure on demand
- Ideal viscosity for doming
- Tack free
- Fast curing with low-power lamps
- 100% solids, no solvents

Description

PERMABOND® UV685 has been developed for use as a coating. It is ideal for coating and doming applications. The optically clear / tack free formulation also makes this product particularly suitable for coating smart card microchips amongst various other applications. Its viscosity makes it suitable for encapsulation of electronic components and its high temperature resistance allows it to resist wave-soldering.

Physical Properties of Uncured Adhesive

Chemical composition	Acrylate
Appearance	Colourless
Viscosity @ 25°C	20rpm: 4,000-8,000 mPa.s *(cP)* 2.5rpm: 10,000-20,000 mPa.s *(cP)*
Specific gravity	1.1

Typical Curing Properties

Typical fixture time*	Low power 4mW/cm² battery lamp: 7 secs LED 100mW/cm² lamp: 2 secs UV light guide 30W/cm²: 1 sec
Tack free time	Low power 4mW/cm² battery lamp: 15 secs LED 100mW/cm² lamp: 5 secs UV light guide 30W/cm²: 1-2 secs
Cure wavelength	320 - 420 nm**

***The cure time depends on the power of the UV lamp, its spectral output, the distance between the lamp and the components, and the transmission characteristics of the substrates.*

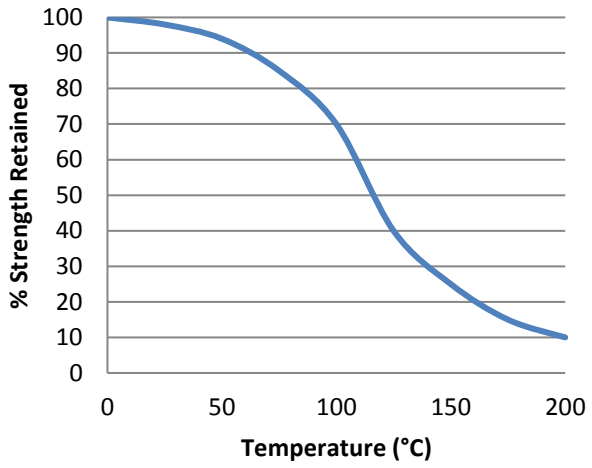
***LED UV lamps have a narrow range of spectral output. It is important to check suitability with Permabond in order to match the LED lamp's peak wavelength with that of the adhesive's photoinitiator to ensure optimal adhesive cure.*

Typical Performance of Cured Adhesive

Tensile strength (ISO37)	8-15N/mm² *(1200-2200psi)*
Light transmittance	>98%
Refractive index	>1.490
Elongation at break (ISO37)	>50%
Hardness (ISO868)	50-65 Shore D
Water absorbtion (ISO62) 2 hours in boiling water	<2%
Glass transition (Tg) DSC 20°C/min rate	+55°C

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

Hot Strength



UV685 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.
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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. Particular care should be taken to remove silicone based cleaning agents which may have been used previously to clean glass.
Some metals such as aluminium, copper and its alloys, will benefit from light abrasion with emery cloth (or similar) to remove the oxide layer.
Isopropanol can be used to degrease most surfaces.
Where thermoplastic surfaces are involved we recommend tests are done to ensure compatibility, mold release agents may affect bond strength.

Directions for Use

1) Adhesive can either be applied directly from the bottle or dispensed via automated dispensing equipment for more accurate dosing. Minimise exposure of product to ambient light.
2) It is important to try to prevent air entrapment within the joint as this could be detrimental to the finished appearance of the adhesive.
3) Parts should be firmly held and not disturbed during cure. Expose the joint to ultra-violet light for the appropriate time to ensure full cure. Cure time depends on the power of the UV lamp, its spectral output, the distance between the lamp and the components, and the transmission characteristics of the substrates.
4) For help selecting a suitable lamp and/or dispensing equipment, please contact the Permabond technical helpline.

Video Link

UV adhesive directions for use:
https://youtu.be/hPUoSOcmEW4

Other Products Available

Anaerobics

- Thread lockers
- Thread sealants
- Gasket makers
- Sealants / retainers

Cyanoacrylates

- Instant adhesives
- For rapid bonding of metals, plastics, rubber and many other materials

Epoxies

- Two-part room temperature cure adhesives
- Single-part heat cure adhesives
- Modified Technology (MT) flexible grades available

MS-Polymers

- Single-part, moisture-curing, flexible sealants

Polyurethanes

- Two-part room temperature curing adhesives

Toughened Acrylics

- Rapid curing, high strength structural adhesives

UV Light Cured Adhesives

- Glass / plastic bonding
- Optically clear
- Non-yellowing

Storage & Handling

Storage Temperature	2 to 7°C *(35 to 45°F)*
Protect liquid adhesive from room lighting.	

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