Permabond®
Engineering Adhesives

NEXT-GENERATION UV ADHESIVE - UV643

Permabond UV643 is an ultra-fast UV-curing adhesive which has been designed to bond a wide variety of rigid plastics at rapid speed.

Example materials which can easily be bonded with UV643 include PC, PMMA, PETG, PET, ABS and PVC. In addition to this, UV643 is ideal for use on dissimilar surfaces such as plastic to metal or plastic to glass.

One of the key features of UV643 is its incredibly fast cure speed - glass to glass bonding takes a fraction of a second using a high intensity UV lamp. Even with a lower-powered lamp or when curing through thick, UV-stabilised plastic, the adhesive still cures very quickly. UV643 offers a fully clean, professional tack-free finish once cured.

The adhesive is thixotropic with controlled-flow properties. This allows for easy dispensing and accurate application, as well as making it suitable for difficult joints and as a fillet. Another key benefit of this product is its outstanding environmental and outdoor durability - it passes 85/85 testing (85% relative humidity at 85°C) and is thus highly resistant to heat, moisture and humidity. This also makes it highly suited to automotive applications.

KEY FEATURES:

- Very fast cure (less than a second)
- Great on rigid plastics & thermoplastics
- Cures through thick &/or UV-stabilised plastics
- Cures through coloured plastics & glass
- Passes 85/85 testing
- Thixotropic, has controlled flow properties
- Tack-free cure
- Great environmental resistance
- Actively resists yellowing
- Excellent resistance to thermal cycling

IDEAL FOR BONDING:

- ABS
- Acrylic
- Aluminum
- Composites
- Ceramics
- Glass
- Mild Steel
- PC
- PET/ PETG
- PMMA
- Rigid PVC
- Steels
- *And many more*

DESCRIPTION

The following technical data for Permabond UV643 is a guideline and does not constitute a specification. For full technical information, please refer to the technical data sheet, available at www.permabond.com. Please contact Permabond to discuss your bonding project.

	UV643
Description	Ultra fast-curing UV adhesive
Appearance	Pale yellow (uncured), clear (cured)
Features	Fast, tack-free, excellent thermo-cycling resistance, for use on thick or coloured glass / plastics
Viscosity	20rpm: 2000 mPa.s 2rpm: 17,600 mPa.s
Shear Strength (Overlap)	Between 6 and 13 N/mm^2, substrate dependant
Cure wavelength	365 - 420 nm*
Hardness (ISO0868)	65 Shore D
Storage	5-25°C
Packaging	10 x 50ml, 10 x 300ml, Bulk on request

*LED UV lamps have a narrow range of spectral output. Check with Permabond to match the lamps' peak wave length with the adhesives' photo-initiator.

Thermal Aging

The table below shows the shear strength retained after thermal aging. Lap shear specimens were prepared and cured at 23°C, aged at the indicated temperature, and tested at 23°C.

Thermal aging at 85°C/85% RH

Substrate	Initial Strength	After Aging: 4 Weeks
Polycarbonate	13 N/mm2*	13 N/mm2*
Aluminium to polycarbonate	10 N/mm2	13 N/mm2*

*Substrate failure was observed

Thermal Cycling

The table below shows the shear strength retained after thermal cycling between -40°C and 80°C/80% RH.

Substrate	Initial Strength	After Aging: (14 cycles)
Polycarbonate	13 N/mm2*	13 N/mm2*
Mild steel to polycarbonate	12 N/mm2	8 N/mm2*

*Substrate failure was observed

Advice regarding UV lamps

The time taken to cure a UV adhesive depends on the UV lamp being used and includes factors such as the power of the lamp (its intensity), its spectral output, the distance between the lamp and the components being bonded, and the thickness and light transmission properties of the substrate. 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 both that of the adhesive's photoinitiator and the transmission of the substrate to ensure optimal adhesive cure.

Authorised distributor stamp:

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