

**LOXEAL UV3016**

**Description**

Loxéal UV3016 is an extremely fast UV curable adhesive developed for the fast bonding of rigid plastics, also in combination with metals. It cures tack-free and it shows excellent performances on several thermoplastic materials such for example PC, PMMA, PETG, PET, ABS and PVC. It also provides high durability when exposed to hot/wet conditions and thermal cycles.

**Typical Physical Properties**

Composition:	Urethane acrylate
Colour:	pale yellow
Viscosity @ 25°C, Brookfield (mPa s):	
2rpm:	17600
20rpm:	2000
Specific gravity (g/cm3):	1,02

**Typical Curing Features**

The polymerization depends on several factors such as: the characteristics of the light source (intensity of radiation, radiation wavelength), its distance from the parts to be bonded, the exposure time, the thickness of the adhesive, the light transparency of the pieces to bond and the geometry of the joint.

We recommend using UV lamps able to produce radiation at wavelengths between 365 nm and 420 nm with a minimum intensity of 100mW/cm<sup>2</sup> for best results.

Fixture Time (seconds) Glass/Glass**:	
UV-LED lamp (400 nm, 150 mW/cm2):	<1
UV-LED lamp (400 nm, 0.1 mW/cm2):	19

\*\*measured for an adhesive layer thickness of 0.1 mm.

**Typical Properties of the cured adhesive @ 400nm with minimum intensity of polymerization 100mW/cm2**

Color:	clear
Lap Shear Strength (ISO4587), N/mm <sup>2</sup> :	
PMMA/PMMA	7 SF
PC/PC	13 SF
PETG/PETG	6 SF
PVC/PVC	8 SF
PC/Aluminium	10 MF
PC/Steel	10 MF

After aging at 85°C/85%RH 4 weeks:	
PC/PC	13 SF
PC/Aluminium	10 SF

Tensile Strength (ASTM D638), MPa:	23
Elongation at break (ASTM D638), %:	50
Elastic modulus (ASTM D638), GPa:	1.2

Tg (DMA, Tan delta):	83°C
Linear Shrinkage (%):	1
Water absorption (after 24h at RT), %:	4

MF=mixed failure SF=substrate failure

**Directions for use**

- **Surface preparation**  
For best results the parts to be bonded should be degreased and cleaned with a suitable solvent (i.e. LoxéalCleaner 10 or Acetone or Isopropyl Alcohol). Specific surface treatments suitable for the substrate ensure higher performances and durability of the bonding.

- **Set up of the UV-Curing Process**  
Assess the transparency of the material through which the ultraviolet radiation has to pass by using a suitable radiometer. It is recommended to use UV light sources that ensure the adhesive receives a minimum radiation intensity of 100mW/cm<sup>2</sup>, emitted at wavelengths between 365nm and/or 420nm. In case of LED lamps, the peak of radiation should be near 400nm.

Record the radiation intensity that will reach the adhesive and set the distance between the lamp and the components to be assembled in order to ensure repeatability and control of the bonding process.

The UV curing may lead to some heating; cool the bonding area to reduce the heating of the components, especially if thermoplastic materials are involved.

- **Assembling**  
Apply the adhesive on one surface and couple the parts without applying additional pressure to avoid the onset of internal stresses after the pressure release. Proceed with irradiation for the time required to fix the components at the identified radiation intensity. Continue with light exposure for a time at least 5-6 times longer than the fixture time to identify the time required for the complete polymerization of the adhesive (it is recommended to consider an additional safety coefficient). The full cure of the adhesive is reached when further exposure to the radiation does not improve the adhesive performances. Allow the components to cool before subjecting the bonding to any loads and before testing.

- **Cleaning**  
The cleaning of the excess adhesive around the gluing area can be carried out with mechanical means after the fixture of the parts or by suitable organic solvents.  
The cured adhesive can only be removed mechanically.

**Storage**

Store the material in a cool and dry place at temperature of +5°C/+25°C. To avoid contaminations do not refill containers with used product. For more information on applications, storage and handling contact LoxéalTechnical Service.

**Safety, handling and disposal**

Consult Material Safety Data Sheet before use.

**Note**

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