

LOXEAL UV3013

Description

LOXEAL UV3013 is a UV curing adhesive especially developed for bonding PMMA, also in combination with several thermoplastic materials, glass and metals. It is suitable for bonding thermoplastic polymers such as PC, PETG, PVC, ABS and it ensures an excellent aesthetic finish. UV3013 provides highly resistant bonds and its flexibility is useful to resist to thermal variations that can occur during the life of the bonded component. A fast cure is achieved also with low-power lamps.

Typical Physical Properties

Composition:	urethane acrylate
Colour:	clear/colourless
Viscosity (+25°C - mPa s):	1700
Specific weight (g/ml):	1,1
Shelf life:	12 months at +25°C in original unopened packaging

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 permeability of the pieces to bond and the geometry of the joint.

We recommend to use UV lamps able to produce radiation at wavelengths between 365 nm and 420 nm with minimum intensity of 50mW/cm² for best results.

Fixture Time** (seconds):	
Low-power lamp 365-400nm, 4mW/cm ²	6
UV-LED lamp 400nm, 100 mW/cm ²	1

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

Typical Properties of the cured adhesive

Aspect	Transparent
Tensile strength, ASTM D638 (MPa):	20
Elongation at break, ASTM D638 (%):	220
Hardness, (Shore A):	80
Water absorption, 24h @25°C, ASTM D570 (%):	6
Volumetric shrinkage (%):	4
Linear shrinkage (%):	0.7
Glass transition temperature, DMA (°C):	70
Temperature range:	-55°C/+120°C
Shear strength:	
Single-lap shear, ISO4587 (MPa):	
PC	8*
PETG	7*
PMMA	6*
Block Shear, ASTM D 4501 (MPa):	
PMMA/GLASS	7,5*

*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. Loxeal Cleaner 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 5mW/cm², emitted at wavelengths between 365nm and/or 420nm. In case of LED lamps, the peak of radiation should be near 365nm or 420nm. 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 Loxeal Technical Service.

Safety, handling and disposal

Consult Material Safety Data Sheet before use.

Note

The data contained herein, obtained in Loxeal laboratories, are given for information only; if specifics are required, please contact Loxeal Technical Department. Loxeal ensures abiding quality of supplied products according to its own specifics. Loxeal cannot assume responsibility for the results obtained by others which methods are not under Loxeal control. It is user's responsibility to determine suitability for user's purpose of any product mentioned herein. Loxeal disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Loxeal products. Loxeal specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.