LOXEAL ENGINEERING ADHESIVES
Registered Quality and Environment Management System Company
UNI EN ISO 9001 - UNI EN ISO 14001

Preliminary Technical Data Sheet

LOXEAL UV30-16

Description

Loxeal UV30-16 is a thixotropic UV curing adhesive, very fast and tack-free, developed for bonding rigid plastic such as PC, PMMA, PETG, PVC, ABS also in combination with metal. Thanks to its speed it provides fast bonding even on colored plastic. Its excellent resistance to heat and moisture and to thermal cycles makes Loxeal UV30-16 the perfect adhesive to resist the thermal variations that can occur to the bonded components.

Typical physical properties

Composition	Urethane acrylate
Colour (liquid):	Pale yellow
Viscosity (+25°C - mPa s):	
2 rpm:	17600
20 rpm:	2000
Specific weight (g/ml):	1,1

Shelf life: 12 months at +25°C in original unopened packaging

Typical Polymerization features

To obtain the best features, clean and dry parts to bond. The polymerization depends on the UV lamp radiation, the distance from the lamp, the thickness of the adhesive applied, the light permeability of the pieces to bond, and the geometry of the joint.
For best results, we recommend using UV lights able to produce UV radiation with wavelengths between 365 nm and 420 nm and minimum intensity of 50mW/cm².

Fixture time** (seconds)	
UV-LED 400 nm 150 mW/cm²	≤1s
UV-LED 400 nm 4 mW/cm²	≤5s

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

Typical Properties of the cured adhesive

Aspect	Transparent
Tensile strength, ASTM D638 (MPa):	23
Elongation at break, ASTM D638 (%):	50
Hardness (Shore D):	65
Water absorption, 24h @25°C, ASTM D570 (%):	4
Glass transition temperature [DMA, Tan delta,˚C]:	83
Temperature range:	-55°C/+120°C
Shear strength	
Single-lap shear, ISO 4587 (N/mm²):	
PC/PC:	13 SF
PMMA/PMMA:	7 SF
PC/Aluminum:	10 SF

SF= Substrate failure

Heat and moisture resistance

The table below shows the shear strength retained after heat ageing at +85°C e 85%RH.
Specimens cured 1 minute with UV-LED 400 nm 150 mW/cm², aged as indicated below and tested at +25°C.

Material	*% initial strength at +25°C*			
	T(°C)	**Rh%**	**336h**	**772h**
PC/PC	85	85	100%	100%
PC/AL	85	85	100%	100%

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 the case of LED lamps, the peak of radiation should be near 365nm or 400nm.
Record the radiation intensity that will reach the adhesive and set the distance between the lamp and the components to be assembled 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.

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- 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

We recommend to store product in a cool and dry place at temperature non-exceeding +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 the 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 the Loxeal Technical Department. Loxeal ensures the abiding quality of supplied products according to its specifics. Loxeal cannot assume responsibility for the results obtained by others whose methods are not under Loxeal control. It is the user's responsibility to determine the suitability for the 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 the sale or use of Loxeal products. Loxeal specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits**.**
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