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

Technical Data Sheet

LOXEAL UV30-11

Description

Loxeal UV30-11 is a low viscosity adhesive fast curing under UV radiations or visible light with appropriate intensity.
The adhesive has been formulated to bond PC, ABS, PVC, TPE with low stress cracking. It makes a flexible and tough plastic film.
Developed to assemble medical components and disposable devices. It is compliant with ISO10993-5 requirements for medical use.

Typical physical properties

Composition:	Urethane acrylate
Colour	Transparent
Viscosity (+25°C - mPa s):	270
Specific weight (g/ml):	1,05
Refractive index @ +25°C:	1,473

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.
We recommend using UV lights able to produce UV radiation with wavelengths between 365 nm and 420 nm and intensity of 100mW/cm².
We recommend cooling the area irradiated with a UV lamp while using thermoplastic materials.

Fixture time** (seconds)

UV-LED, 395nm, 150mW/cm2:	
PC/PC	4
PMMA/PMMA	4
PETG/PETG	4
UV-LED, 365nm, 150mW/cm2:	
PC/PC	15
PMMA/PMMA	5
PETG/PETG	4

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

Stress cracking

According to ASTM D3929:

Stress test @ 7 N/mm^2	> 15 min
Stress test @ 12 N/mm^2	> 4 min

Typical Properties of the cured adhesive

Aspect	Transparent
Hardness (Shore D):	55
Water absorption, 24h @25°C, ASTM D570 (%):	1,1
Volumetric shrinkage (%):	6,4
Tensile strength, ASTM D638 (MPa):	20
Elongation at break, ASTM D638 (%):	110
Temperature range:	-55°C/+120°C

Shear strength ISO 4587 (N/mm²):

PC/PC	9 SF
PETG/PETG	4 SF
PVC/PVC	6 SF

CF= Cohesive failure
SF= Substrate failure
AF= Adhesive failure

Sterilization effects:

Loxeal UV30-11 shows excellent results after standard sterilization processes under E.T.O. and Gamma Radiations.

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

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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/cm^2, 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.

- 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.

Note

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