Technical Datasheet

Vitralit® UC 1633

Product Description

Modified epoxy | 1 part | solvent-free | UV curing

- Lens replica
- Optical lenses
- Micro lens arrays / Fresnel lens
- Imprint material
- Medium viscosity
- High transmission
- Resistant to yellowing
- Good adhesion to glass
- No additional primer needed
- Good demolding from mold (PDMS)
- Halogen free

Curing Properties

UV-A	LED 365nm	LED 405nm	Secondary heat cure
✓	✓	-	-

✓ *suitable* – *not suitable*

UV-curing (Hoenle Discharge lamp, 320-390nm)		
Intensity [mW/cm²]*	Layer thickness [mm]	Time [s]
60	0.12	120

**measured by Hoenle UV-Meter 3.0 / UV-A F0*

LED-curing (Hoenle LED Spot 100, 365nm)		
Intensity [mW/cm²]**	Layer thickness [mm]	Time [s]
300	0.12	30

***measured by Hoenle UV-Meter 3.0 / LED F2*

To obtain full cure at least one substrate must be transparent to the recommended wavelength. The curing speed depends on the wavelength spectrum of the light source, the intensity of light, the distance to the light source, the component geometry and the amount of adhesive. The final strength is reached after 24 hours.

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Resin	Epoxy
Appearance	Transparent, colorless

Uncured Material	
Viscosity [mPas] (Kinexus Rheometer, 25 °C) *PE-Norm 064*	Newtonian fluid 170 – 230
Density [g/cm³] *PE-Norm 004*	1.1

Cured Material	
Hardness shore D *LED 365nm, 300mW/cm², 30s + 120°C, 60min* *PE-Norm 006*	40
Temperature resistance [°C]	-40 – 120
Shrinkage [%] *LED 365nm, 250mW/cm², 60s* *PE-Norm 031*	1.8
Water absorption [%] *LED 365nm, 250mW/cm², 60s* *PE-Norm 016*	0.7

Glass transition temperature - DMA [°C] *LED 365nm, 250mW/cm², 60s*	105
Coefficient of thermal expansion [ppm/K] below Tg *LED 365nm, 250mW/cm², 60s* *PE-Norm 017*	65
Coefficient of thermal expansion [ppm/K] above Tg *LED 365nm, 250mW/cm², 60s* *PE-Norm 017*	205

Storage modulus – DMA [MPa] *LED 365nm, 250mW/cm², 60s* *PE-Norm 022*	1,400
Elongation at break [%] *LED 365nm, 250mW/cm², 60s* *PE-Norm 014*	25

Optical parameters	
Transmission [%] in 120µm *400 – 1000nm* *PE-Norm 042*	> 98%
Refractive index (uncured) [nD20] *PE-Norm 023*	1.491

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Refractive index (cured) [nD20] *LED 365nm, 250mW/cm², 60s + 120°C , 1h* *PE-Norm 023*	1.511
ABBE coefficient / Dispersion	56
Haze [%] *400 – 1000nm* *PE-Norm 071*	0.05

Optical parameters						
Wavelength [nm]	480	546	589	646	850	1550
Refractive index n (cured) *LED 365nm, 250mW/cm², 60s + 120°C, 1h*	1.5176	1.5129	1.5115	1.5084	1.5039	1.4992

Cauchy parameters	
Parameter a	1.4972
Parameter b [nm²]	4.7042 E+03
Parameter c [nm⁴]	8.6465 E+05
Equation	$n = a + b/\lambda^2 + c/\lambda^4$

Transport/Storage/Shelf Life

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	At room temperature max. 25°C	At room temperature max. 25°C	At delivery min. 3 months max. 6 months
Other packages			

Store in original, unopened containers!

Instructions for use

Surface preparation

The surfaces to be bonded should be free of dust, oil, grease, mold release, or other contaminants in order to obtain an optimal and reproducible bond. For cleaning we recommend the cleaner IP® from Panacol, or a solution of Isopropyl Alcohol at 90% or higher concentration. Substrates with low surface energy (e.g. polyethylene, polypropylene) must be pretreated in order to achieve sufficient adhesion.

Application

Our products are supplied ready to use. Depending on the packaging, our adhesives may be dispensed by hand directly from the package, or they can be applied using dispensing systems and automation that is compatible with light-curable adhesive chemistry. Vitralit® adhesives can begin to cure slowly in daylight and with longer term exposure under indoor lighting. We therefore recommend that adhesive exposure to ambient light must be kept to a minimum. Fluid lines and dispense tips must be 100% light blocking. For assistance with dispensing options, please contact our Application Engineering department. Adhesive and substrate should not be cold for proper bonding. They must be allowed to warm to room temperature prior to processing. After dispensing the adhesive, bonding of the parts should be done promptly. It is recommended that curing stations be equipped with air exhaust systems to evacuate vapors and heat generated during the curing process. After curing, the adhesive must be allowed to cool to ambient temperature before testing the product's performance. For safety information refer to our Material Safety Data Sheet (MSDS).

Storage

This is light sensitive material. Containers must remain covered when not in use. Minimize exposure of uncured material to daylight, artificial light, and UV light during storage and handling. Store uncured product in its original, closed container in a dry location. Any material removed from the original container must not be returned to the container as it could be contaminated. Panacol cannot assume responsibility for products that were improperly stored, contaminated, or repackaged into other containers.

Handling and Clean-up

For safe handling information, consult this product's Material Safety Data Sheet (MSDS) prior to use. Uncured material may be wiped away from surfaces with organic solvents. Do not use solvents to remove material from eyes or skin!

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Disclaimer

The product is free of heavy metals, PFOS and Phthalates and is conform to the current EU-Directive RoHS.

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