Technical Datasheet

Vitralit® 1600 LV

Product Description

Modified epoxy | 1 K | solvent-free | radiation-curing UV | secondary heat cure

- Electronics
- Electrotechnology
- Glob top
- Semiconductor technology
- High glass transition temperature
- Low water absorption
- Low ionic content (Na+, K+, Cl- <5ppm)
- Very low shrinkage
- Excellent chemical resistance

Curing Properties

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

✓ *suitable* – *not suitable*

If applicable, heat may only be used as a secondary cure for shadowed areas after the product has been cured with UV.

UV-curing (Hoenle Discharge lamp, 320-390nm)		
Intensity [mW/cm²]*	Layer thickness [mm]	Time [sec]
60	0.5	30

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

LED-curing (Hoenle LED Spot 100, 365nm)		
Intensity [mW/cm²]**	Layer thickness [mm]	Time [sec]
400	0.5	20

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

Secondary heat cure	[min]
Time at 105°C	30

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	Epoxid
Appearance	Grey
Filler	Quartz
Filler - weight [%]	52
Particle size D95 [µm]	32

Uncured Material	
Viscosity [mPas] (Brookfield LVT, 25 °C, Sp. 4/30 rpm) *PE-Norm 001*	5,000 – 6,000
Viscosity [mPas] (Kinexus Rheometer, 25 °C, $10s^{-1}$) *PE-Norm 064*	3,000 – 5,000
Thixotropic index [1/10] *PE-Norm 064*	>1.1
Density [g/cm³] *PE-Norm 004*	1.4 – 1.6
Flash point [°C] *PE-Norm 050*	>100
Refractive index [nD20] *PE-Norm 018*	1.4936
Working time [h] *@ room temperature*	8

Cured Material	
Hardness shore D *PE-Norm 006*	83 – 93
Temperature resistance [°C] *PE-Norm 059*	-40 – 180
Shrinkage [%] *PE-Norm 031*	<1
Water absorption [%] *PE-Norm 016*	<1

Glass transition temperature - DSC [°C] *PE-Norm 009*	150 – 180
Coefficient of thermal expansion [ppm/K] below Tg *PE-Norm 017*	<40
Coefficient of thermal expansion [ppm/K] above Tg *PE-Norm 017*	120 – 200

Thermal conductivity [W/m*K] *PE-Norm 062*	<1
Thermal conductivity [W/m*K] *PE-Norm 054*	<2
Dielectric constant [10kHz] *IEC 63631-2-1*	1 – 4
Dielectric strength [kV/mm] *DIN EN 60243*	30 – 40

Young´s modulus – Tensile test [MPa] *60mW/cm², 30sec, Fe spectra + 30min, 105°C* *PE-Norm 056*	7,900 – 8,500
Tensile strength [MPa] *60mW/cm², 30sec, Fe spectra + 30min, 105°C* *PE-Norm 014*	35 – 40
Elongation at break [%] *60mW/cm², 30sec, Fe spectra + 30min, 105°C* *PE-Norm 014*	<1

Transport/Storage/Shelf Life

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	-20°C	-20°C	At delivery min. 6 months max. 12 months
Other packages	0°C – 10°C		

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!

Disclaimer

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

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