

# Technical Datasheet

## Vitralit® UD 8060 F



Preliminary Datasheet. The technical statements are only guidelines and can be changed at any time.

### Product Description

**Modified acrylate | 1 part | solvent-free | UV / Visible light curing | Secondary humidity cure**

- ▶ Protective encapsulation of electronic components on PCB
- ▶ Consumer electronics
- ▶ High elongation
- ▶ Good adhesion to plastics and metals
- ▶ Resistant to high temperature and humidity

### Curing Properties

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

✓ *suitable*    – *not suitable*

In cases where UV curing is applicable, humidity may only be used as a secondary process for shadowed areas.

### LED-curing (Hoenle LED Spot 100, 405nm)

Intensity [mW/cm <sup>2</sup> ]**	Layer thickness [mm]	Time [sec]
400	0.5	5
1,000	0.5	4
2,000	0.5	2

\*\*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. Technical values were determined after 8 days of post-curing with humidity.

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Resin	Isocyanate acrylate
Appearance	Translucent, slightly yellow
Fluorescence	Blue

Uncured Material	
Viscosity [mPas] (Kinexus Rheometer, 25 °C, 10s <sup>-1</sup> ) <i>PE-Standard 064</i>	6,000
Thixotropic index [1/10] <i>PE-Standard 064</i>	2
Density [g/cm <sup>3</sup> ] <i>PE-Standard 004</i>	1.1
Refractive index [nD20] <i>PE-Standard 023</i>	1.48
Working life [days] <i>@ room temperature</i>	14

Cured Material	
Temperature resistance [°C]	-40 – 130
Water absorption [wt%] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Norm 016</i>	2.3

	Bonding strength*
Right after UV-cure**	15% of final strength
+3 days humidity cure***	40% of final strength
+6 days humidity cure ***	85% of final strength
+8 days humidity cure ***	21 MPa

\*Block shear test on PC

\*\* UV cure: LED 405nm, 400mW/cm<sup>2</sup>, 30s.

\*\*\* Humidity cure: 23°C, 49% relative humidity.

Glass transition temperature - TMA [°C] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 022</i>	20
Coefficient of thermal expansion [ppm/K] below Tg <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 017</i>	40
Coefficient of thermal expansion [ppm/K] above Tg <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 017</i>	340
Young's modulus – tensile test [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 056</i>	190

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Tensile strength [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 014</i>	13
Elongation at break [%] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 014</i>	130
Block shear strength (AlMg3) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	17
Block shear strength (Copper) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	18
Block shear strength (FR4) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	24
Block shear strength (PMMA) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	21
Block shear strength (Glass) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	16

After storage at 85°C/85% RH, 120h	
Block shear strength (FR4) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	17
Block shear strength (PC) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	14
Block shear strength (PMMA) [MPa] <i>LED 405nm, 400mW/cm<sup>2</sup>, 30s + 49% RH, 8d</i> <i>PE-Standard 075</i>	10

### Transport/Storage/Shelf Life

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	0°C – 10°C	0°C – 10°C	At delivery min. 3 months max. 6 months

**\*Store in original, unopened containers!**

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### 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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