Technical Datasheet

Vitralit® UH 1411

Product Description

Modified epoxy/acrylate | 1 part | solvent-free | UV / Visible light curing plus heat curing

- Exclusively for encapsulation
- General bonding of plastics
- Very good wetting properties
- Flexible adhesive
- Electrically insulating

Curing Properties

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

✓ *suitable* – *not suitable*

LED-curing (Hoenle LED Spot 100, 365nm)		
Intensity [mW/cm²]**	Layer thickness [mm]	Time [s]
500	0.025 – 0.1	15

LED-curing (Hoenle LED Spot 100, 405nm)		
Intensity [mW/cm²]**	Layer thickness [mm]	Time [s]
700	0.025 – 0.1	10

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

For complete curing, it is necessary to apply heat after the UV curing process. The typical curing profile is as follows:

Secondary heat cure	[min]
Time at 120°C	1.5

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.

Technical Datasheet

Vitralit® UH 1411

Technical Data

Resin	Epoxy-acrylate
Appearance	Transparent

Uncured Material	
Viscosity [mPas] (Kinexus Rheometer, 25 °C, $10s^{-1}$) *PE-Standard 064*	6,200
Density [g/cm³] *PE-Standard 004*	1.1
Refractive index [nD20] *PE-Standard 023*	1.50

Cured Material	
Hardness shore D *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 006*	31
Temperature resistance [°C]	-40 – 180
Shrinkage [%] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 031*	0.2
Water absorption [%] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 016*	2.3

Glass transition temperature - DMA [°C] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 022*	70
Coefficient of thermal expansion [ppm/K] below Tg *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 017*	59
Coefficient of thermal expansion [ppm/K] above Tg *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 017*	219

Storage modulus – DMA [MPa] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 022*	260
Young´s modulus – Tensile test [MPa] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 056*	100
Tensile strength [MPa] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 014*	7
Elongation at break [%] *405nm, 500mW/cm², 40s + 120 °C, 15min* *PE-Standard 014*	20

WVTR [g/(m²·d)] *405nm, 500mW/cm², 40s + 120 °C, 15min* *1mm, 60°C + 90% RH, 72h* *PE-Standard 072*	102

Transport/Storage/Shelf Life

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	0°C – 10°C	0°C – 10°C	At delivery min. 1.5 months max. 3 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!

Disclaimer

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

THE VALUES NOTED IN THIS TECHNICAL DATA SHEET ARE TYPICAL PROPERTIES AND ARE NOT MEANT TO BE USED AS PRODUCT SPECIFICATIONS.

The information contained in this data sheet is believed to be accurate and is provided for information only. Panacol makes no representation or warranties of any kind concerning this information. It is the user's responsibility to determine the suitability of this product for any intended use. Panacol does not assume responsibility for test or performance results obtained by the user. The user assumes all risk and liability connected with the use of this product.

The user should adopt such precautions and use guidelines as may be advisable for the protection of property and persons against any hazards that may be involved in this product's handling or use. Panacol specifically disclaims any liability for consequential or incidental damages of any kind arising from the handling or use of this product. The information contained in this Technical Data Sheet offers no assurance that the product use, application, or process will not infringe on existing patents or licenses of others. Nothing in this Technical Data Sheet transfers or grants license for the use of any patents, trade secrets, intellectual property, or confidential information that is the property of Panacol.

Except as otherwise noted, all trademarks in this document (identified as ®) are the property of Panacol.

Contact

Panacol-Elosol GmbH
Stierstädter Straße 4
61449 Steinbach
Germany
Phone: +49 6171 6202-0
Mail: info@panacol.de
www.panacol.com

Panacol-USA, Inc.
142 Industrial Lane
Torrington CT 06790
USA
Phone: +1 860-738-7449
Mail: info@panacol-usa.com
www.panacol-usa.com

Panacol-Korea Co., Ltd.
#707, Kranz Techno,
388 Dunchon-daero
Junwon-gu, Seongnam
Gyeonggi-do, 13403 KOREA
Phone: +82 31 749 1701
Mail: info@panacol-korea.com
www.panacol-korea.com

Eleco Panacol – EFD
125, av Louis Roche
Z.A. des Basses Noëls
92238 Gennevilliers Cdx FRANCE
Tél.: +33 (0)1 47 92 41 80
Mail: eleco@eleco-panacol.fr
www.eleco-panacol.fr