

Technical Datasheet

Vitralit® 7041



Product Description

Panacol Vitralit® adhesives are one-component, solvent-free radiation-curing adhesives. The advantages are very short curing times, good adhesion to a variety of substrates, and easy handling. Vitralit® products are used in electronics, medical applications, optics and for fixing parts in general.

Vitralit® 7041 is a low viscosity, solvent-free, LED light curable adhesive that forms resilient, high strength bonds between many plastics and dissimilar materials such as stainless steel, glass, and aluminum. Bonds prepared with Vitralit® 7041 are clear, hard, and highly resistant to moisture.

The low viscosity of Vitralit® 7041 makes it particularly well suited for fast filling of deep wells, and also for applications requiring wicking or capillary action. Vitralit® 7041 cures extremely quickly with broad spectrum UV lamps (320-450 nm), as well as monochromatic LED lamps. Optimal LED curing is achieved using LED systems with outputs of 365nm or 405nm. In many cannula to hub bonding applications, full cure can be secured in less than one second exposure with an LED.

A fluorescing version of this product, (Vitralit® 7041 F), is available to use with high speed, automated vision inspection systems. Vitralit® 7041 has passed the testing required for USP Class VI biocompatibility approval, and is compatible with common sterilization methods including gamma irradiation, EtO, and limited autoclaving.

Curing Properties

UV-A	VIS	Thermal curing	Activator curing
✓	✓	-	-

✓ suitable - not suitable

The product cures within seconds with radiation in the UV-A - range (320 nm - 390 nm) and visible range (405 nm). For rapid and high quality crosslinking we recommend the UV devices manufactured by Dr. Hoenle AG, which complement our adhesive technology.

Bluepoint LED/LED-spot		
Wavelength [nm]	365	405
Suitability	++	+++

++ well-suited +++ ideal - not suitable

To obtain full cure at least one substrate must be transparent to the recommended wavelength. The curing speed will depend on the intensity of light, light source, the exposure time, and the light transmittance of the substrate. Increased mechanical properties are achieved after 12 hours.

UV-curing (Hoenle Discharge Lamp, 320-450nm)		
Intensity [mW/cm ²]	Layer thickness [mm]	Time [sec]
60	0,02	2

VIS-curing (Hoenle LED Spot 100, 405nm)		
VIS intensity [mW/cm ²]	Layer thickness [mm]	Time [sec]
1000	3	2

Technical Data

Resin acrylate
Appearance transparent, slightly yellow

Uncured material

Viscosity [mPas] [cP] (Brookfield LVT, 25°C, Sp 2, 60rpm) <i>PE-Norm 001</i>	50 - 90
Density [g/cm ³] <i>PE-Norm 004</i>	1,05
Flash point [°C] <i>PE-Norm 050</i>	>93 (200°F)
Refractive index [nD20] <i>PE-Norm 018</i>	1,47

Cured material

Hardness shore D <i>PE-Norm 006</i>	70 - 80
Temperature resistance [°C] <i>PE-Norm 065</i>	-40 - 120 (-40-248°F)
Shrinkage [%] <i>PE-Norm 031</i>	<4
Water absorption [mass %] <i>PE-Norm 016</i>	<7

Glass transition temperature DSC [°C] <i>PE-Norm 009</i>	32 - 42 (90-108°F)
Coefficient of linear expansion [ppm/K] below Tg <i>PE-Norm 017</i>	83,0
Coefficient of linear expansion [ppm/K] above Tg <i>PE-Norm 017</i>	386,0

Young's modulus E [MPa] <i>PE-Norm 056</i>	550 (79 770 psi)
Tensile strength [MPa] <i>PE-Norm 014</i>	17,4 (2 524 psi)
Elongation at break [%] <i>PE-Norm 014</i>	131,9

Transport/Storage/Shelf Life

Trading unit	Transport	Storage	Shelf-life*
Cartridge	at room temperature max. 25°C (77°F)	at room temperature max. 25°C (77°F)	at delivery min. 6 months max. 12 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 or other dirt in order to obtain an optimal and reproducible bond.

For cleaning we recommend the cleaner IP® Panacol. 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 packaging they can be applied by hand directly from the container or semi or fully automatically. With automated application from the cartridge the adhesive is conveyed by a compressed air-operated displacement plunger via a valve in the needle. When metering low viscosity materials from bottles the adhesive is transported by a diaphragm valve. If help is required, please contact our application engineering department.

Adhesive and substrate may not be cold and must be warmed up to room temperature prior to processing.

After application, bonding of the parts should be done quickly. Vitralit® adhesives cure slowly in daylight. Therefore, we recommend to expose the material to as little light as possible and the use of opaque hose lines and dispensing needles.

For safety information refer to our safety data sheet.

Disclaimer

The product is free of heavy metals, PFOS and Phthalates and is conform to the EU-Directive 2011/65/EU "RoHS II".

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.

Technical Datasheet

Vitralit[®] 7041



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.