

# Technical Datasheet

## Vitralit® 1691



### 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® 1691 is a UV-curable, black-colored epoxy resin, which is used as a glob-top. As a special feature Vitralit® 1691 has a thermal initiator, which allows the subsequent curing of shadow areas.

Vitralit® 1691 is distinguished by a high ionic purity (Na +, K +, Cl- <10ppm) and is extremely temperature-resistant. An important advantage of the conventional potting compounds is the fast UV fixation of the surface. Due to the subsequent short thermal postcuring by IR radiation, there is no limitation of the layer thickness.

### 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). For rapid and high quality crosslinking we recommend the UV devices manufactured by Dr. Hoenle AG, which complement our adhesive technology.

UV-curing (Hoenle Discharge lamp, 320-450nm)		
Intensity [mW/cm <sup>2</sup> ]	Layer thickness [mm]	Time [sec]
70	0,5	120

Thermal curing	[min]
Time at 110°C	30

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 24 hours.

### Technical Data

Resin	epoxy
Appearance	black quartz
Filler	quartz
Filler – weight [%]	50
Particle size D95 [µm]	21

# Technical Datasheet

## Vitralit® 1691



### Uncured material

Viscosity [mPas] (Brookfield LV, 25°C, Sp 4, 1,5rpm) <i>PE-Norm 001</i>	280 000 - 310 000
Viscosity [mPas] (Kinexus Rheometer, 25°C, 1s <sup>-1</sup> ) <i>PE-Norm 064</i>	50 000 - 80 000
Viscosity [mPas] (Kinexus Rheometer, 25°C, 10s <sup>-1</sup> ) <i>PE-Norm 064</i>	20 000 - 40 000
Density [g/cm <sup>3</sup> ] <i>PE-Norm 004</i>	1,55
Flash point [°C] <i>PE-Norm 050</i>	> 100

### Cured material

Hardness shore D <i>PE-Norm 006</i>	80 - 90
Temperature resistance [°C]	-40 - 180
Shrinkage [%] <i>PE-Norm 031</i>	<1
Water absorption [mass %] <i>PE-Norm 016</i>	<1

Glass transition temperature DSC [°C] <i>PE-Norm 009</i>	130 - 150
Coefficient of thermal expansion [ppm/K] below Tg <i>PE-Norm 017</i>	56
Coefficient of thermal expansion [ppm/K] above Tg <i>PE-Norm 017</i>	166

Thermal conductivity [W/m*K] <i>PE-Norm 062</i>	1
----------------------------------------------------	---

Young's modulus E [MPa] <i>PE-Norm 056</i>	6 083
Tensile strength [MPa] <i>PE-Norm 014</i>	35
Elongation at break [%] <i>PE-Norm 014</i>	1

### Transport/Storage/Shelf Life

Trading unit	Transport	Storage	Shelf-life*
Cartridge	0°C - 10°C	0°C - 10°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 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 2017/2102/EU "RoHS III".

**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.

# Technical Datasheet

## Vitralit® 1691



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**  
Daimlerstr. 8  
61449 Steinbach  
Germany  
Phone.: +49 6171 6202-0  
Mail: [info@panacol.de](mailto:info@panacol.de)  
[www.panacol.com](http://www.panacol.com)

**Panacol-USA, Inc.**  
142 Industrial Lane  
Torrington CT 06790  
USA  
Phone: +1 860-738-7449  
Mail: [info@panacol-usa.com](mailto:info@panacol-usa.com)  
[www.panacol-usa.com](http://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](mailto:info@panacol-korea.com)  
[www.panacol-korea.com](http://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](mailto:eleco@eleco-panacol.fr)  
[www.eleco-panacol.fr](http://www.eleco-panacol.fr)