### **Technical Datasheet**

## Vitralit® 1722



#### **Product Description**

#### Modified epoxy | 1 part | solvent-free | UV curing

- Coating circuit boards
- Relay encapsulation

- Excellent adhesion to many plastics
- Good chemical resistance

#### **Curing Properties**

UV-A	LED 365nm	LED 405nm	Secondary heat cure
✓	<b>✓</b>	-	-

✓ suitable

- not suitable

UV-curing (Hoenle Discharge lamp, 320-390nm)				
Intensity [mW/cm <sup>2</sup> ]*	Layer thickness [mm] Time [s]			
60	0.5	90		

<sup>\*</sup>measured by Hoenle UV-Meter 3.0 / UV-A F0

LED-curing (Hoenle LED Spot 100, 365nm)				
Intensity [mW/cm <sup>2</sup> ]**	Layer thickness [mm]	Time [s]		
300	0.5	60		

<sup>\*\*</sup>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.

The final strength is reached after 24 hours.

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# Vitralit® 1722



Resin	Technical Data	
Discosity (mPas) (Brookfield LVT, 25 °C, Sp. 4/30 rpm)   5,000 − 8,000		
Uncured Material		. ,
Viscosity [mPas] (Brookfield LVT, 25 °C, Sp. 4/30 rpm)         5,000 – 8,000           PE-Norm 001         4,000 – 6,000           Viscosity [mPas] (Kinexus Rheometer, 25 °C, 10s-1)         4,000 – 6,000           PE-Norm 064         1.1 – 1.4           Density [g/cm³]         1.1 – 1.2           PE-Norm 064         1.53 – 1.55           Working life [days]         1.53 – 1.55           Working life [days]         3           © room temperature         3           Cured Material         4           Hardness shore D         70 – 76           PE-Norm 059         50-rinkage [%]           Shrinkage [%]         <2	Appearance	Transparent
PE-Norm 001   S,000 - 6,000   Viscosity [mPas] (Kinexus Rheometer, 25 °C, 10s²)   4,000 - 6,000   4,000 - 6,000   1.1 - 1.4   Density [g/cm³]   1.1 - 1.2   Density [g/cm³]   1.1 - 1.2   Density [g/cm³]   1.53 - 1.55   Density [g/cm³]   1.53 - 1.5   Density [g/cm³]   1.53 - 1.5   Density [g/cm³]   1.53 - 1.5   Densi	Uncured Material	
Viscosity [mPas] (Kinexus Rheometer, 25 °C, 10s-¹)       4,000 − 6,000         PE-Norm 064       1.1 − 1.4         Density (g/cm³)       1.1 − 1.2         PE-Norm 004       1.53 − 1.55         Refractive index [nD20]       1.53 − 1.55         Working life (days)       3         © room temperature       3         Cured Material       3         Hardness shore D       70 − 76         PE-Norm 006       70 − 76         Temperature resistance [°C]       -40 − 150         Shrinkage [%]       <2		5,000 – 8,000
### PE-Norm 064  Thixotropic index [1/10] ### PE-Norm 064  Density [g/cm³] #PE-Norm 004  Refractive index [nD20] #PE-Norm 018  Working life [days] ### PE-Norm 018  Cured Material  Hardness shore D #PE-Norm 006  Temperature resistance [°C] #PE-Norm 059  Shrinkage [%] #PE-Norm 016  Glass transition temperature - DSC [°C] #PE-Norm 016  Glass transition temperature - DSC [°C] #PE-Norm 017  Coefficient of thermal expansion [ppm/K] below Tg #PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg #PE-Norm 017  Thermal conductivity [W/m*K] #PE-Norm 017  Disclectric constant [10kHz] #### BE-Norm 052  Dielectric strength [kW/mm] #### Disclectric strength [kW/mm] #### Disclectric fixength less the many fixenges and some personal strength [MPa] ####################################		
PE-Norm 064	PE-Norm 064	4,000 – 6,000
Density [g/cm³]   1.1 − 1.2     PE-Norm 004   1.53 − 1.55     Refractive index [nD20]   1.53 − 1.55     Working life [days]   3     © room temperature   3     Working life [days]   70 − 76     Hardness shore D   70 − 76     PE-Norm 006   70 − 76     PE-Norm 006   40 − 150     Shrinkage [%]   <2     PE-Norm 031   <2     Water absorption [%]   <2     PE-Norm 016   50 − 70     Coefficient of thermal expansion [ppm/K] below Tg     PE-Norm 017   200 − 350     Coefficient of thermal expansion [ppm/K] above Tg     PE-Norm 017   200 − 350     Thermal conductivity [W/m*K]   0.3 − 0.5     Dielectric constant [10kHz]   50 − 9.0     Young's modulus − Tensile test [MPa]   1,800 − 2,200     PE-Norm 016   1,800 − 2,200     PE-Norm 016   1,800 − 2,200     PE-Norm 017   30 − 3.5     Tensile strength [MPa]   1,800 − 2,200     VA-Fe-doped hand lamp, 60mW/cm², 90s   39 − 41     PE-Norm 016   30 − 41     PE-Norm 016   30 − 41     PE-Norm 016   30 − 41     PE-Norm 017   30 − 41     PE-Norm 018   30 − 41     PE-Norm 019   30 − 41     PE		1.1 – 1.4
### Refractive index [nD20] ### Refractive index [nD20] ### PE-Norm 018    Working life [days] ### Orom temperature    Cured Material		11 12
## PE-Norm 018    Working life [days]   3    © room temperature   3    Cured Material	PE-Norm 004	1.1 – 1.2
PE-Norm 018		1.53 – 1.55
Cured Material           Hardness shore D         70 − 76           PE-Norm 006         70 − 76           Temperature resistance [°C]         -40 − 150           PE-Norm 059         -40 − 150           Shrinkage [%]         <2		1.55 1.55
Cured Material		3
Hardness shore D PE-Norm 006  Temperature resistance [°C] PE-Norm 059  Shrinkage [%] PE-Norm 031  Water absorption [%] PE-Norm 016  Glass transition temperature - DSC [°C] PE-Norm 009  Coefficient of thermal expansion [ppm/K] below Tg PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg PE-Norm 017  Thermal conductivity [W/m*K] PE-Norm 062  Dielectric constant [10kHz] IEC 62631-2-1 Dielectric strength [kV/mm] DIN EN 60243  Young's modulus - Tensile test [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 - 5  UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 - 5	@ room temperature	
### PE-Norm 006  Temperature resistance [°C] ### PE-Norm 059  Shrinkage [%] ### PE-Norm 031  Water absorption [%] ### \$\frac{2}{2} \text{PE-Norm 016}  Glass transition temperature - DSC [°C] ### \$\frac{2}{2} \text{PE-Norm 009}  Coefficient of thermal expansion [ppm/K] below Tg ### \$\frac{2}{2} \text{PE-Norm 017}  Toefficient of thermal expansion [ppm/K] above Tg ### \$\frac{2}{2} \text{200 - 350} \text{PE-Norm 017}  Thermal conductivity [W/m*K] ### \$\frac{2}{2} \text{0.3 - 0.5} \text{Dielectric constant [10kHz] ### \$\frac{2}{2} \text{0.3 - 0.5} \text{Dielectric strength [kV/mm] ### \$\frac{2}{2} \text{0.3 - 0.5} \text{0.3 - 0.5} \text{Dielectric strength [kV/mm] ### \$\frac{2}{2} \text{0.3 - 0.5} \text{0.3 - 0.5} \text{Dielectric strength [kV/mm] ### \$\frac{2}{2} \text{0.3 - 0.5} \text{0.3 - 0.5 \text{0.3 - 0.5} \text{0.3 - 0.5} \text{0.3 - 0.5} \text{0.3 - 0.5} \		
Temperature resistance [°C]  PE-Norm 059  Shrinkage [%]  PE-Norm 031  Water absorption [%]  PE-Norm 016  Glass transition temperature - DSC [°C]  PE-Norm 009  Coefficient of thermal expansion [ppm/K] below Tg  PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg  PE-Norm 017  Thermal conductivity [W/m*K]  PE-Norm 062  Dielectric constant [10kHz]  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5  1,800 – 2,200  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 6  3 – 7  3 – 7  3 – 7  3 – 7  3 – 7		70 – 76
PE-Norm 059   Shrinkage [%]		
Shrinkage [%] PE-Norm 031  Water absorption [%] PE-Norm 016  Glass transition temperature - DSC [°C] PE-Norm 009  Coefficient of thermal expansion [ppm/K] below Tg PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg PE-Norm 017  Thermal conductivity [W/m*K] PE-Norm 062  Dielectric constant [10kHz] IEC 62631-2-1  Dielectric strength [kV/mm] DIN EN 60243  Young's modulus - Tensile test [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 - 5		-40 – 150
Water absorption [%]  PE-Norm 016  Glass transition temperature - DSC [°C]  PE-Norm 009  Coefficient of thermal expansion [ppm/K] below Tg  PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg  PE-Norm 017  Thermal conductivity [W/m*K]  PE-Norm 062  Dielectric constant [10kHz]  IEC 62631-2-1  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus - Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 - 5		_
Glass transition temperature - DSC [°C]  PE-Norm 009  Coefficient of thermal expansion [ppm/K] below Tg  PF-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg  PE-Norm 017  Thermal conductivity [W/m*K]  PE-Norm 062  Dielectric constant [10kHz]  IEC 62631-2-1  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus - Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PF-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PF-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 - 5		<2
Glass transition temperature - DSC [°C] PE-Norm 009  Coefficient of thermal expansion [ppm/K] below Tg PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg PE-Norm 017  Thermal conductivity [W/m*K] PE-Norm 062  Dielectric constant [10kHz] IEC 62631-2-1  Dielectric strength [kV/mm] DIN EN 60243  Young's modulus - Tensile test [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 056  Tensile strength [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 - 5		-2
Coefficient of thermal expansion [ppm/K] below Tg PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg PE-Norm 017  Thermal conductivity [W/m*K] PE-Norm 062  Dielectric constant [10kHz] IEC 62631-2-1 Dielectric strength [kV/mm] DIN EN 60243  Young's modulus – Tensile test [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 056  Tensile strength [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 – 5	PE-Norm 016	\Z
Coefficient of thermal expansion [ppm/K] below Tg PE-Norm 017  Coefficient of thermal expansion [ppm/K] above Tg PE-Norm 017  Thermal conductivity [W/m*K] PE-Norm 062  Dielectric constant [10kHz] IEC 62631-2-1  Dielectric strength [kV/mm] DIN EN 60243  Young's modulus – Tensile test [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 056  Tensile strength [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 – 5	Glass transition temperature - DSC [°C]	50 70
Coefficient of thermal expansion [ppm/K] above Tg PE-Norm 017  Thermal conductivity [W/m*K] PE-Norm 062  Dielectric constant [10kHz] IEC 62631-2-1  Dielectric strength [kV/mm] DIN EN 60243  Young's modulus – Tensile test [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 056  Tensile strength [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 – 5		30 – 70
Coefficient of thermal expansion [ppm/K] above Tg  PE-Norm 017  Thermal conductivity [W/m*K]  PE-Norm 062  Dielectric constant [10kHz]  IEC 62631-2-1  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5	,	<50
Thermal conductivity [W/m*K]  PE-Norm 062  Dielectric constant [10kHz]  IEC 62631-2-1  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		
Dielectric constant [10kHz]  JEC 62631-2-1  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5	, .,, .,	200 – 350
Dielectric constant [10kHz]  JEC 62631-2-1  Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5	Thermal conductivity [W/m*K]	
Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		0.3 – 0.5
Dielectric strength [kV/mm]  DIN EN 60243  Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5	Dielectric constant [10kHz]	30-35
Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 – 5		
Young's modulus – Tensile test [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		8.0 – 9.0
UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 056  Tensile strength [MPa] UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 3 – 5	DIN EN 60243	
PE-Norm 056  Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		
Tensile strength [MPa]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		1,800 – 2,200
UV-A Fe-doped hand lamp, 60mW/cm², 90s PE-Norm 014  Elongation at break [%] UV-A Fe-doped hand lamp, 60mW/cm², 90s 39 – 41  39 – 41  39 – 41		
PE-Norm 014  Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		20 44
Elongation at break [%]  UV-A Fe-doped hand lamp, 60mW/cm², 90s  3 – 5		39 – 41
UV-A Fe-doped hand lamp, 60mW/cm², 90s		
		2_5
	PE-Norm 014	3-3

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#### **Transport/Storage/Shelf Life**

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	At room temperature	At room temperature	At delivery
Other packages	max. 25°C	max. 25°C	min. 6 months max. 12 months

<sup>\*</sup>Store in original, unopened containers!

#### **Instructions for use**

Crystallization can occur during storage but this is reversible by briefly heating to 40 °C.

#### **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.

# **Technical Datasheet** Vitralit® 1722



#### 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.

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