

Technical Datasheet

Vitralit® 90013



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® 90013 is a LED curable, low stress, Kapton® bonding adhesive and encapsulant.

Vitralit® 90013 is a flexible, LED curable adhesive that provides excellent adhesion to polyimide films typically used in flex circuit assembly. It will also bond many dissimilar plastics and materials including metal, ceramic, and glass. Vitralit® 90013 is a solvent-free material with high ionic purity. This adhesive is ideal for use as a component encapsulant on flex circuit boards. This adhesive's softness and high flexibility protects fragile wire leads and other critical connections from vibration and impact damage. Vitralit® 90013 performs well as an interface between materials with differing coefficient of thermal expansion, (CTE), values. Bonds prepared with Vitralit® 90013 are clear, colorless, and highly resistant to moisture and yellowing. It performs very well in applications that experience repeated thermal cycling. After curing, this adhesive exhibits a dry, tack-free surface. Vitralit® 90013 can be cured rapidly with broad spectrum UV and visible light (320nm-460nm). Cooler curing, monochromatic LED systems can also be used for rapid component assembly. It is recommended that Vitralit® 90013 be cured with LED systems possessing outputs of 365nm or 405nm.

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.

UV-curing (Hoenle Discharge Lamp, 320-450nm)		
Intensity [mW/cm ²]	Layer thickness [mm]	Time [sec]
60	0,05	2

VIS-curing (Hoenle LED Spot 100, 405nm)		
Intensity [mW/cm ²]	Layer thickness [mm]	Time [sec]
100	0,05	10

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.

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Resin
Appearance

acrylate
transparent, slightly yellow

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Uncured material

Viscosity [mPas] [cP] (Brookfield LVT, 25°C, Sp 3, 30rpm) <i>PE-Norm 001</i>	900 - 1 500
Density [g/cm ³] <i>PE-Norm 004</i>	1,06
Flash point [°C] <i>PE-Norm 050</i>	>93
Refractive index [nD20] <i>PE-Norm 018</i>	1,471

Cured material

Hardness shore D <i>PE-Norm 006</i>	20 - 40
Temperature resistance [°C]	-40 - 120
Shrinkage [%] <i>PE-Norm 031</i>	<3
Water absorption [mass %] <i>PE-Norm 016</i>	<4

Glass transition temperature DSC [°C] <i>PE-Norm 009</i>	20 - 30
Coefficient of thermal expansion [ppm/K] below Tg <i>PE-Norm 017</i>	13
Coefficient of thermal expansion [ppm/K] above Tg <i>PE-Norm 017</i>	540

Young's modulus E [MPa] <i>PE-Norm 022</i>	33
Tensile strength [MPa] <i>PE-Norm 014</i>	2
Elongation at break [%] <i>PE-Norm 014</i>	329

Transport/Storage/Shelf Life

Trading unit	Transport	Storage	Shelf-life*
Cartridge	at room temperature max. 25°C	at room temperature max. 25°C	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 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".

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