# Technical Datasheet
# Vitralit® 7311 FO

## 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® 7311 FO is a low viscous, transparent and UV and/or light curing adhesive based on acrylate. Vitralit® 7311 FO provides excellent adhesion to the most plastics such as PC, PVC, PMMA, ABS as well as to glass and metals. Due to its extremely low viscosity and good capillarity, Vitralit® 7311 FO is suitable for large area bonding applications as well as for applications where the gap size is very small. This product fluoresces orange (550-650nm) for in-line inspection under low-intensity black light (365nm). Vitralit® 7311 FO has been tested and met the specifications of USP Class VI. The product is compatible to common sterilization processes and well suited for use in the assembly of disposable medical devices. The bonding with Vitralit® 7311 FO is humidity and alcohol resistant.

## Curing Properties

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

✓suitable - not suitable

The product cures within seconds with radiation in the UV-A - (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/cm²] | Layer thickness [mm] | Time [sec] |
| 60 | 0,5 | 5 |

| VIS-curing (Hoenle LED Spot 100, 405nm) | | |
|---|---|---|
| Intensity [mW/cm²] | Layer thickness [mm] | Time [sec] |
| 1000 | 0,5 | 2 |

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.

## Technical Data

| | |
|---|---|
| Resin | acrylate |
| Appearance | transparent |
| Fluorescence | orange |

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**Uncured material**

| | |
|---|---|
| Viscosity [mPas]<br>(Kinexus Rheometer, 25°C, $20s^{-1}$)<br>*PE-Norm 064* | 40 - 70 |
| Flash point [°C]<br>*PE-Norm 050* | >100 |

**Cured material**

| | |
|---|---|
| Hardness shore D<br>*PE-Norm 006* | 40 - 65 |
| Temperature resistance [°C] | -40 - 120 |
| Shrinkage [%]<br>*PE-Norm 031* | <3 |
| Water absorption [mass %]<br>*PE-Norm 016* | <3 |

| | |
|---|---|
| Glass transition temperature DSC [°C]<br>*PE-Norm 009* | 30 - 40 |
| Coefficient of thermal expansion [ppm/K] below Tg<br>*PE-Norm 017* | 57 |
| Coefficient of thermal expansion [ppm/K] above Tg<br>*PE-Norm 017* | 410 |

| | |
|---|---|
| Young's modulus E [MPa]<br>*PE-Norm 056* | 428 |
| Elongation at break [%]<br>*PE-Norm 014* | 160 |
| Lap shear strength (PC/PC) [MPa]<br>*PE-Norm 013* | 10 |
| Lap shear strength (PMMA/PMMA) [MPa]<br>*PE-Norm 013* | 7 |
| Lap shear strength (PVC/PC) [MPa]<br>*PE-Norm 013* | 9 |

## 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!***

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## 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.**

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