

Product Description

Vitralit® 1703 is a high viscosity, thixotropic and UV curing acrylate adhesive. Cured material appears translucent in thick layers, in thin layers it is transparent.

Vitralit® 1703 is specially designed for plastic bondings where high gap filling capabilities are required. The thixotropic nature provides clean, fast and automated dispensing processes. It shows high material strength and a tack-free finish because of low oxygen inhibition.

Vitralit® 1703 has met the requirements for USP Class VI and is compatible with the most common sterilization methods like ethylene oxide and gamma sterilization. Therefore the product is suitable for use in the assembly of disposable medical devices or short term medical devices.

Curing Properties

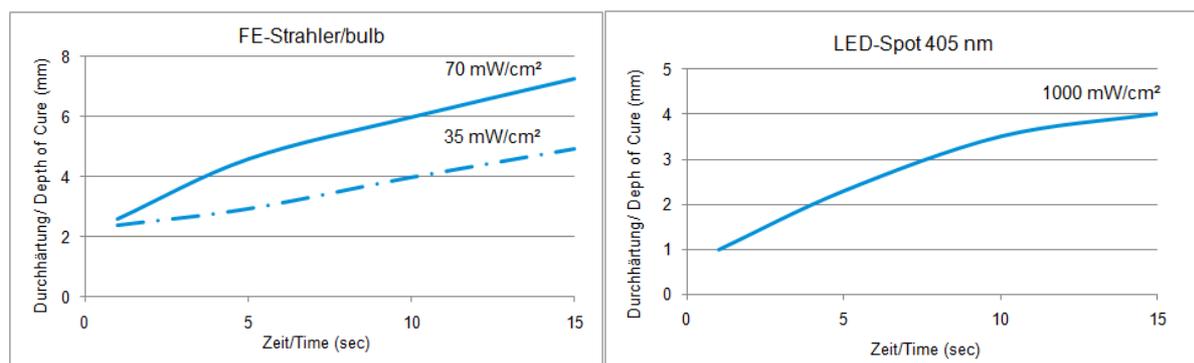
Vitralit® 1703 provides fast cure properties at low intensities. For rapid and high quality bonding we recommend the UV and LED devices manufactured by Dr. Hönle AG, which complement our adhesive technology.

Material thickness of 0.5 mm can be cured in approximately 10 seconds using UV light with intensity of 60 mW/cm². To obtain full cure at least one substrate must be transparent to UV light. The curing speed will depend upon the light intensity, light source, the exposure time, and the light transmittance of the substrate. Using wavelength of 405 nm high light intensities are required. Increased cure properties are developed after 12 hours.

bluepoint LED/ LED-Spot		
Wavelength [nm]	365	405
Suitability	++	++

+ limited ++ suitable +++ excellent

The graphs below show the increase in depth of cure as a function of exposure time at two different intensities for two different curing devices.



Technical Data

Base	acrylate
Curing	one part UV light
Appearance	transparent, slightly yellow

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Uncured Material

Viscosity [mPas] high shear rate (Brookfield LVT, 25 °C, SP64/30rpm) PE-Norm 001	10,000 - 15,000
Viscosity [mPas] low shear rate (Brookfield LVT, 25 °C, SP64/3rpm) PE-Norm 001	85,000 - 130,000
Density [g/cm ³] PE-Norm 004	1.1
Flash Point [°C]	> 100
Refractive Index n_D^{20} PE-Norm 018	1.48

Cured Material

Glass Transition Temperature DSC [°C] PE-Norm 009	75 - 85
Hardness Shore D PE-Norm 006	75 - 80
Young' s Modulus [MPa] PE-Norm 056	2,500
Coefficient of Linear Expansion below T _g PE-Norm 017	72
Coefficient of Linear Expansion above T _g PE-Norm 017	255
Shrinkage [%] PE-Norm 031	< 4
Water Absorption [%] PE-Norm 016	< 2
Temperature Resistance [°C]	-55 - 135

Recommended Substrates

PMMA	●	PP	△
PC	✓	ABS	✓
PVC	✓	SAN	✓
PET-A	△	Glas/glass	●
PET-G	●	Stahl/steel	△
PUR	●	Al	△
PS	●	V2A	△

✓ very good ● application related △ surface pretreatment required

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Sterilization

Vitralit® 1703 shows good bond strength retention after sterilization. Generally the resistance depends on the substrate material, the curing parameters and the process of sterilization. It remains the user's obligation to determine the effect of sterilization on the specific product.

Storage and Shelf life

The product can be stored for 6 months at 7 °C to 25 °C in unopened containers. Store under dry and dark conditions only.

Packaging Unit

Standard packaging units of 100 g and 1 kg are available. Others on request.

Instructions for Use

Surface Preparation

The surfaces to be bonded should be clean and free from oil and grease. Lightly soiled surfaces can be cleaned with our cleaner IP®. Substrates with low surface energy (such as polyethylene and polypropylene) need to be pretreated.

Application

Our products are supplied ready for use. They can be applied manually from the cartridges or automatically with air-operated dosing devices (cartridge/piston combination). Depending on the amount of adhesive to be used, different valves are available. If help is required, please consult our application department.

For reliable and fast bonding the substrate temperature should be at room temperature.

Vitralit® products cure with UV light. Therefore exposure of light should be kept to a minimum during handling. We recommend using opaque feedlines and nozzles.

For safety information refer to our safety data sheet.

