

Product Description

Vitralit® UV 4050 is a low viscosity, transparent and modified acrylate adhesive with good bonding to a wide range of materials including plastics, metals and glass. Vitralit® UV 4050 is suitable for transparent plastics with low UV transmission such as PC.

Vitralit® UV 4050 has met the requirements for ISO 10993-5 and is suitable for use in the assembly of disposable medical devices. The fluorescent capabilities for adhesive bond verification improves the process quality.

Low viscosity makes Vitralit® UV 4050 ideal for needle bonding and other medical applications where wicking of the adhesives into the pre-assembled parts is required. It is compatible with sterilization including autoclaving, gamma irradiation and EtO.

Curing Properties

Vitralit® UV 4050 can be cured by exposure of UV and/or light. Increased cure properties are developed after 12 hours. High bonding strength can be developed using UV lamp with gallium bulb and with high intensity.

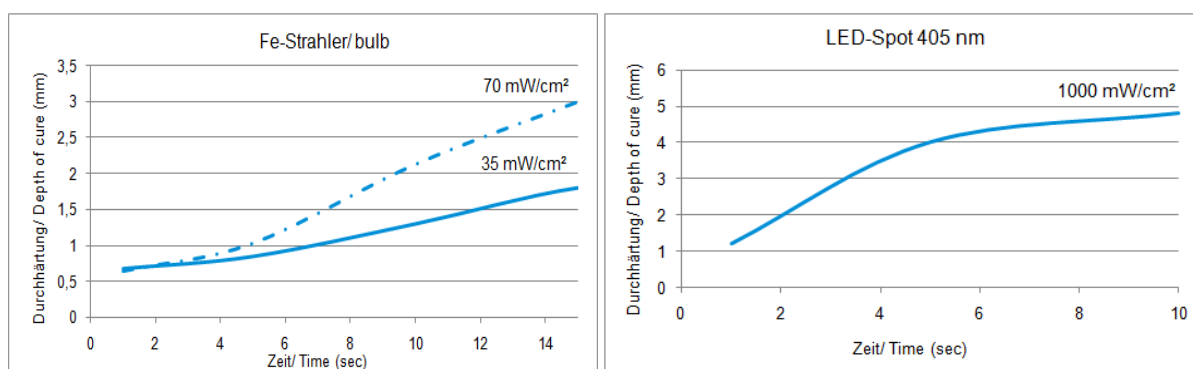
For rapid and high quality bonding we recommend the UV and LED devices manufactured by Dr. Hönle AG, which complement our adhesive technology.

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

+ limited ++ suitable +++ excellent

To obtain full cure at least one substrate must be transparent to UV and/or visible light. The curing speed will depend upon the light intensity, light source, the exposure time, and the light transmittance of the substrate.

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



Technical Data

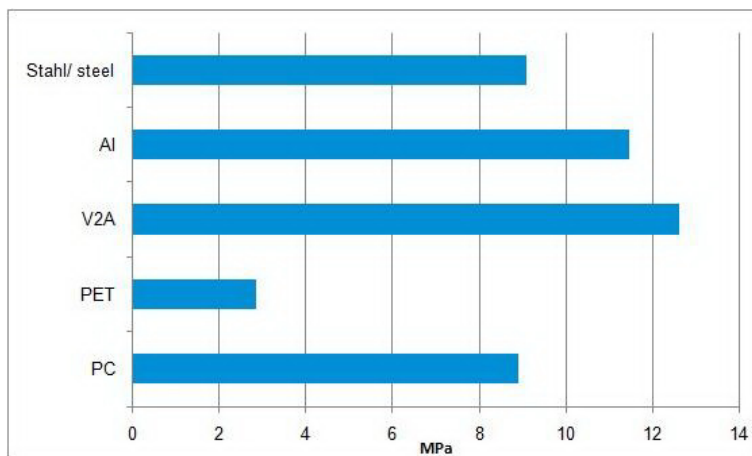
Base	acrylate
Curing	one part, UV/VIS light
Appearance	transparent, slightly yellow

Uncured Material

Viscosity [mPas] (Brookfield LVT, 25 °C, 62/30rpm) PE-Norm 001	140 - 500
Density [g/cm ³] PE-Norm 004	1.05
Flash Point [°C]	> 100
Refractive Index n_D^{20} PE-Norm 018	1.48

Cured Material

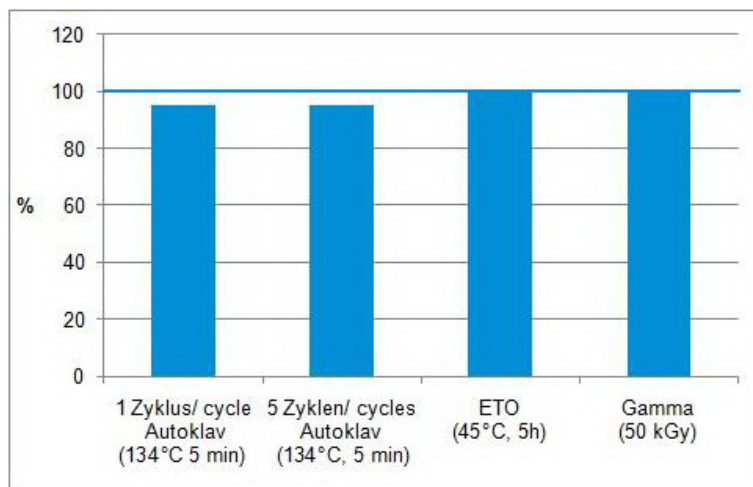
Glass Transition Temperature DSC [°C] PE-Norm 009	35 - 45
Hardness Shore D PE-Norm 006	60 - 70
Young' s Modulus [MPa] PE-Norm 056	450
Coefficient of Linear Expansion below T_g PE-Norm 017	91
Coefficient of Linear Expansion above T_g PE-Norm 017	340
Linear Shrinkage [%] PE-Norm 031	< 3
Water Absorption [%] PE-Norm 016	< 7
Temperature Resistance [°C]	-40 - 135
Tensile Shear Strength [MPa] PE-Norm 013	



Sterilization

The diagram below shows the pull out force of glass needles after sterilization expressed as % of

initial strength. The needles were cured with 365 nm Bluepoint LED at 880 mW/cm².



Vitralit® UV 4050 shows good bond strength retention after sterilization by autolaving, EtO and gamma irradiation. 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 3 x 30 g, 250 g or 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 and visible 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.

Note

Our data sheets have been compiled to the best of our knowledge. The enclosed information describes characteristic properties, with no declaration of commitment. We recommend trials in order to confirm that our products satisfy the particular application requirements. For an additional technical

Vitralit® UV 4050



consultation, please contact our R&D department. In general, for warranty claims, please refer to our standard terms and conditions.