



# WHITE PAPER

**Innovative Medical Disposable Device Assembly**

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## TECHSiL Ltd

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# LED Curing Adhesive Technology

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**In a number of industries, UV curable adhesives have become state of the art method for joining UV transparent substrates, especially glass and a variety of plastics.**



In the early 1980's, this technology successfully transferred into the medical disposables industry. The first generation of adhesives, a simple mixture of adhesion-promoting monomers with photoinitiators, was limited to thinner substrates and low viscosities, since adding fillers often resulted in opaque products. With the development of tailor-made oligomers, a large variety of different, transparent formulations entered the market place. Additionally, biological compatibility was achieved by reducing monomers levels in the adhesives, and formulating with a conscious effort to meet USP Class VI biocompatibility requirements.

Most recent advancements in photoinitiators, active in the visible light wavelengths above 400nm, and LED lamp technology have resulted in the next, innovative generation of light curable adhesives for the medical device industry.

The advantages of the latest adhesive developments associated with visible LED light curing are best described by faster curing times, broader adhesion to a variety of substrates including UV blocked plastics, very high bond strength with excellent environmental aging properties and greater stability during sterilization processes including ETO, autoclaving, gamma, and E-beam radiation.

The latest generation of 405nm, high power LED curing units from Hoenle offers significant advantages over conventional UV arc lamp technology: Less maintenance efforts and significant reductions of overall costs.

# LED Curing Adhesive Technology

Light curing adhesives are mainly used in the assembly of disposable medical products with high throughput. The speed of dispensing and curing of such materials enables the manufacturer to reduce production costs, associated with remarkable lower consumption of energy, decreasing the carbon footprint as well.

Panacol's medical adhesive portfolio allows a variety of different design and substrate options: Needle to plastic and glass hubs and syringes, connectors, housings, filters, catheters, endoscopes, covers, blood filters, face masks and surgical instruments.

Advantages of LED units	
LED wavelength available (nm)	365, 385, 395, 405
Ozone generation	No
Thermal radiation	Minimal
Efficiency	Up to 40%
Required space	Low
Operation	No warm up, instant switch on-off, no shutter necessary
Typical lifetime	20,000 hrs
Maintenance	Minimal

Panacol Medical Grade Adhesives offer a variety of properties uncured and cured: low to medium viscosities, clear and wicking, gap filling with different hardness and USP Class IV and/or ISO 10993 compliance.

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## About Panacol

Panacol-Elosol GmbH is the German subsidiary of Swiss company Panacol AG. Panacol is an international supplier in the growth market for industrial adhesives, with an extensive product range from UV adhesives to structural adhesives to silicones.

In addition to Eleco-EFD, an affiliated company in France, Panacol provides an international network of distributors, which ensure a personal advisory service around the world.

Since January 2008 Panacol has been a member of the Hönle Group and is benefiting from the numerous synergies in the field of industrial UV technology.

In the spring of 2009, Panacol took over the adhesives and sealant sales operation for the entire group as well as Hönle's other subsidiary Wellomer GmbH, making Panacol a leader in industrial adhesives.

**Contact us for more information on our UV Curing Adhesives:**

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