

Press information

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Steinbach/Taunus, 26 September 2023

Panacol's Special Adhesives for Medical Wearables

Wearable patient monitoring devices are worn directly on the body and are being used in increasing numbers. These devices include diabetes sensors for monitoring blood glucose levels (GCM), as well as wireless monitors that transmit patient information to healthcare providers. They must be reliable and durable, while also safe for direct skin contact. Panacol has developed a broad portfolio of specialty adhesives for this purpose that meet the stringent demands imposed by medical device manufacturers. To be able to provide a complete bonding solution, Panacol teamed with metering equipment manufacturer Scheugenpflug and UV equipment manufacturer Dr. Höhle. A system concept was identified and successfully tested that enables precise metering for the dispensing of low volumes of UV adhesives with integrated LED UV curing.

Panacol's medical device adhesives exhibit excellent adhesion to commonly used medical-grade substrates, including polycarbonate, polyimides, polyamides, stainless steel and ceramic. These adhesives are tested for biocompatibility in accordance with ISO 10993-4/-5/-10/-23 and/or USP Class VI protocols.

This group of adhesives includes LED curable UV acrylates and UV epoxies which provide the shortest curing cycle times for high volume production. They are ideal for needle/hub assembly, component attachment, and for sealing enclosures. Multiple viscosity ranges are available to provide the best match to component configuration and assembly process. Fluorescing versions are available to enhance quality control relying on in-line vision systems.

Also included in this group are electrically conductive adhesives and conventional thermosetting epoxies. They offer connectivity and attachment solutions for PCB and electrical component assembly. Several epoxy selections are available with high ionic purity which is essential to minimize the risk of corrosion on the PCB.

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ISO 9001
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Panacol's silver-filled electrically conductive adhesives can often replace solder joints or be applied on bendable or flexible wearables.

Accurate and consistent adhesive dispensing is mandatory when assembling medical devices. For the small dispensing volumes, the best choice is the high-precision DosPL DPL2001 micro dispensing head from Scheugenpflug, part of the Atlas Copco Group. This allows highly accurate application of the adhesives even for the smallest volumes down to the μ l range. This allows glob tops to be reliably set to 0.003ml, dispensing accuracies of less than 0.5% to be achieved, and the thinnest lines to be made on the plastic housing with precise start and stop.

The dispensing head works on the principle of volumetric dispensing. A control system reliably detects viscosity fluctuations and ensures consistently high precision of the bonding contour.

The curing or hardening of Panacol's UV acrylate and epoxy adhesives can be achieved in seconds due to their uniquely formulated compositions. LED curing systems from industry leader Dr. Hönle enable maximum optimization of the curing process. This ensures the shortest curing cycle time and the highest throughput. In the tested system concept, Hönle's LED Spot 40 IC, with a wavelength of 405nm was used. The compact design of this LED head allowed it to be integrated with the DosPL DPL2001 dispensing head into Scheugenpflug's DispensingCell DC803 multifunction robotic cell. This work cell permits components to remain in one position for both dispensing and UV curing processes. Parts handling is minimized, along with the risks of component movement, contamination, and adhesive migration. This integrated system concept ensures the adhesive bonding process is performed to the highest quality standards with the greatest efficiency. Whether batch production or continuous flow, integrated adhesive bonding systems from Panacol, Scheugenpflug, and Hönle meet the demanding production requirements for medical wearables.

Visit our Panacol booth (hall 8B / booth A09) at Compamed from 13 to 16 November 2023 in Düsseldorf Germany! There you can also see our one-stop solution for the production of wearables, including adhesive dispensing and curing in cooperation with Scheugenpflug and Dr. Hönle.

Or watch our video: www.youtube.com/watch?v=UYU94RtPyis

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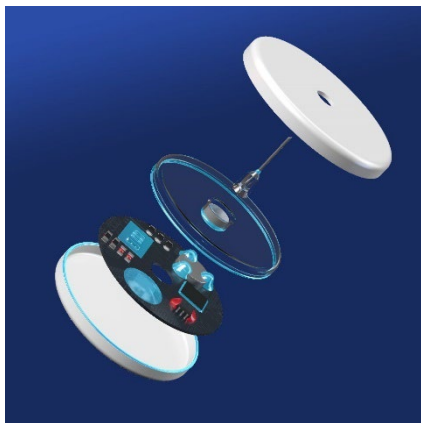
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Caption:

Medical grade adhesives contribute to design flexibility and fast assembly of monitoring sensors.

Photo: Panacol

Note: *The photographic material may only be published in connection with the associated press release.*