

Home > Medical

October 21, 2024 12:48 PM

Helmbrechts shows how it can bring its technology to health care

DAVID VINK
Correspondent

 TWEET  SHARE  SHARE  EMAIL

 REPRINTS



Caroline Seidel

Having once shifted from molding cellphone housing to functional decorative automotive parts, Helmbrechts, Germany-based KH Kunststoff Helmbrechts AG has more recently reduced its auto industry dependency by becoming active in the development and production of medical devices.

This is well exemplified by the market introduction of the new niia essential patch-based basal-bolus insulin pump, developed by Biel/Bienne, Switzerland-based PharmaSens AG together with Leigh, Scotland-based Shore Group.

The 45-by-18-millimeter device measures glucose levels and delivers insulin via a single patch. PharmaSens applied for U.S. Food and Drug Administration approval in December 2023. Two further versions are due to follow niia essential, which combines insulin pen ease with advantages of a sophisticated insulin pump but "without all the whistles and bells," according to PharmaSens.

KH uses two-component hard/soft molding for the polycarbonate rigid plastic housing and three interconnected soft black TPE operating function areas. A 250-microns-thick white relatively opaque in-mold labeling polycarbonate foil is selectively screen printed with six layers. It has a translucent tint along with an opaque lettering. A scratch- and chemical-resistant lacquer top coating completes the foil preparation.

This is all prior to shaping, stamping and insertion of the foil into a mold for back molding, taking particular care not to distort the symbols, especially the central illuminated ring area.

The final result is a "black panel" effect commonly used in automotive interiors, which ensures functions only appear when touch-activated. But it is slightly toned down, enabling some "intuitive" visibility rather than complete disappearance.

Use of relatively opaque PC foil ensures adequate visibility of the white symbols and illumination without undesired stray lights. KH finally assembles all 13 components of the niija essential, a challenging task due to limited space.

Head of Sales Christian Pohlschmidt said the molding is so precise that it is impossible to feel any difference when stroking the exterior PC/TPE interface. He said KH molds the parts in a clean room mold environment, with the moldings passing through to clean room assembly and packaging.



Caroline Seidel

The Niia essential patch-based basal-bolus insulin pump, developed by Biel/Bienne, Switzerland-based PharmaSens AG together with Leigh, Scotland-based Shore Group.

Deep metal

KH expertise in special surface effects now extends to a new "deep metal" effect. Key account manager David Hennig was able to pass some details to *Plastics News*, although the project hasn't yet got off the ground with an automotive industry customer.

The effect is created with a lower transparent plastic foil that is back molded with partially translucent black plastic, resulting in an impression of depth. The metallic effect is created with an extremely thin indium layer on the foil.



Caroline Seidel

From the left: Michael Papke and Christian Pohlschmidt of KH Kunststoff Helmbrechts at Fakuma 2024 in Friedrichshafen, Germany.

Glass overmolding

A technique of overmolding small and very thin glass panes from 0.5- to 1-millimeter thickness and in diameters of only several millimeters was announced at Fakuma 2023, after five years of development work, with very few details available at the time.

KH Senior Account Manager Michael Papke said at [Fakuma 2024](#) this is partly due to the project not being expected to become fully commercialized until the early 2030s. But he did reveal that the technique differs considerably from that developed by Kunststoff-Institut Lüdenscheid (KIMW) with larger and thicker glass panes. This is because with KH's technique, it is impossible to feel the interface between glass and plastic. This is an important feature for the potential market in laboratory analysis equipment, where any obstruction of fluid flow upsets measurements.

Papke admitted that ensuring complete sealing between the glass and plastic against fluids is a challenge. And even though the seal is quite tight

due to thermoplastic shrinkage, it still needs to be controlled by in-line camera and leakage inspection.

Holding a small thin piece of glass in an injection mold tool without it breaking under high temperature and holding pressure is another challenge. Other challenges include different coefficients of the thermal expansion and high injection pressures up to 2,000 bar.

*Letter
– to the –
Editor*

Do you have an opinion about this story? Do you have some thoughts you'd like to share with our readers? **Plastics News** would love to hear from you. Email your letter to Editor at editorial@plasticsnews.com

Most Popular

1

Niche Polymer acquires four LYB resin powder plants, forms Specialty Powders