

Molding Raw Material and Know-How Together to Form a Needleless Injector

The Makrolon Rx2530 polycarbonate has proved itself useful within the medical community.

Avant Medical, a leading medical technology manufacturer, is currently developing the latest generation of its Pulse Injection technology for needleless injection of medications. This "Gen 3" device is capable of delivering up to 30 doses from a single medication reservoir. Not only can this be used in a clinical setting, but this patented product will also make life easier for people who must frequently self-administer medications.

The Pulse Injection system is based on vacuum stabilization and two-stage delivery to ensure reliable and convenient injections. Makrolon Rx2530 plays a huge role in the drug's delivery, as the polycarbonate is molded into the nozzle component of the cassette part that administers the drug. Makrolon's makeup provides a fluid pathway for the drug, while also generating a pulse that punctures the skin.

This is not the first time that Makrolon has been used in medical components. The Swiss company Alcon Grieshaber AG uses Makrolon to make its micro forceps and scissors for ophthalmic surgery. The German company RoweMed has employed Makrolon technologies as well.

"Makrolon Rx 1805, which RoweMed has used to good effect in the past, was ideally suited to the complex requirements profile of the RoweMiniPump. Our polycarbonate offers the high transparency, impact strength, drug resistance, and good sterilizability required for this application," says Markus Krieter, medical device specialist in the Polycarbonates Business Unit of Bayer MaterialScience. Makrolon is best suited for applications requiring minimum color change after exposure to sterilizing doses of gamma radiation. The product also meets the requirements of the FDA-modified ISO 10993 "Biological Evaluation of Medical Devices" for 30-day indirect blood contact applications.

"The technical support at Bayer MaterialScience helped us, through design optimization, to achieve the required strength of the nozzle. The specialists at Bayer MaterialScience were a great resource for us to call on. They know so much about their materials and are willing to spend the time and effort to ensure we have success with our end product," said John Slate, VP of Operations at Avant Medical. The nozzle of the needleless injector meets international standards of safety and withstands up to 45 impacts.

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