

Good grip for prosthetic fingers

When Matthew Mikosz, President of Partial Hand Solutions, saw the number of soldiers returning home with hand and finger injuries, he decided to develop prosthetic fingers that would feel and operate as naturally as possible for the recipient. He built the prototype for his "M-Fingers" device with material development assistance from compounder RTP Company.



The M-Finger uses different RTP materials

"While there were a number of prosthetic hand designs on the market, no functional mechanical fingers had yet been developed," explained Mikosz. The **M-Finger** design uses an **RTP 2300** series glass-filled rigid TPU for the inner structure of the fingers and multi-position thumb. These are then overmoulded with an **RTP 1200** series soft TPU. The elastomer provides each finger with dexterity to independently and gently conform to whatever it grasps, while the rigid polyurethane material provides the product with good strength and dimensional stability.

The mechanical fingers are actuated by wrist flexions and include moulded-in fingernails for picking up small objects such as coins. "It was very important that RTP Company's materials provide both structural stability and, at the same time, the ability to move and operate the prosthesis smoothly," explained Chris Budnick, General Manager of **Vanguard Plastics**, who was also involved in the development of M-Fingers. M-Fingers are distributed by **Liberating Technologies**, Holliston, MA, USA.

New biocompatible compounds for medical devices

Recently RTP introduced new TPEs for the production of medical devices. The **2700 S MD series** have been pretested for compliance with ISO 10993-5/10/11 biocompatibility standards and are available in hardnesses ranging from 30 to 80 Shore A.

Josh Blackmore, RTP's Global Market Manager Healthcare explains: "Having ISO 10993 biocompatibility testing compliance makes these materials ideal candidates for many healthcare applications because the formulations have been pretested for cytotoxicity, irritation, and acute systemic toxicity."

These compounds offer a number of advantages to medical device applications including gamma and EtO sterilisability. They can be processed via multi-shot overmoulding, with inherent bondability to PP substrates, to add soft-touch, ergonomic features for moulded-in stoppers, seals, and masks. RTP says, that good flexibility is maintained over the entire 30 to 80 Shore A hardness range of the materials, and adds that these products are cost competitive when replacing alternative medical grade TPE materials such as thermoplastic vulcanisates or olefinic-based thermoplastic elastomers.

Naturally translucent, these TPE compounds are fully colourable with the company's **EMD** series colour products, which offer biocompatibility compliance to precoloured resins and colour masterbatches.

The materials are appropriate for use in many Class I and II medical devices. Applications range from drug delivery systems, that require multi-shot overmoulding for ergonomics and cost efficiency, to disposable devices that require good needle stick and reseal performance, tear strength, or compression set properties. These materials will also benefit other applications such as surgical tools that require slip-resistance when moist and colour identification for accurate tool identification. They can also be used in respiratory care requiring materials that offer a high degree of clarity and low tack for contact with patient's skin.

Adresse:

<http://www.gupta-verlag.com/general/news/k-2010/8761/good-grip-for-prosthetic-fingers>

