



Pain Therapy Device Gains A Sure Grip

Versalloy™ TPV from PolyOne's GLS Thermoplastic Elastomers provides safety, durability and signature blue color

Situation

Biowave Corporation of Norwalk, Conn., is a medical device manufacturer whose pain therapy products help patients manage pain and reduce the use of medications such as opiates. Biowave devices deliver a therapeutic electrical signal into deep tissue in the body, blocking the transmission of pain. In addition to a version for clinicians, the company offers the BiowavePRO® non-invasive neuromodulation system designed for individual use by athletes to reduce pain and enhance rehabilitation.

In designing the housing for the BiowavePRO, Biowave had several objectives. The portable device, targeted at college and professional sports teams, had to be durable enough to handle a sports environment – travel on buses and planes, use in locker rooms, and the risk of being bumped or dropped. The design called for two protective bumpers on the sides of the housing to provide a non-slip grip for the user. In addition to durability, these bumpers needed resilience for a comfortable feel and the ability to incorporate membrane switches.

An important goal was brand distinction, including a sleek, simple design and signature color. To achieve this, Biowave wanted the bumpers to give the appearance of being integrated with the front and rear housing and to be custom colored.

The PolyOne Difference

Biowave consulted PTA Corp., its molder, for guidance on materials for the housing. PTA turned to PolyOne's GLS Thermoplastic Elastomers business unit due to a longstanding relationship and confidence in GLS's ability to provide the best material in a short timeframe. GLS recommended its Versalloy™ XL 9070X-1 thermoplastic vulcanizate (TPV) alloy for excellent surface quality, easy processing with excellent flow, and high tear strength. It can also be easily colored for excellent aesthetics.

GLS provided custom coloring and rapid delivery of the material to meet a tight production schedule. The bumpers were molded separately and then slipped into channels between the upper and lower housing components instead of overmolding them onto the housing. This approach maintained the streamlined design while controlling costs.

From a processing standpoint, PTA was very happy with the moldability of the Versalloy TPV, which delivers a high-quality surface finish and resists striations that can occur with other elastomers.



Delivering a Value-Added Solution

Versalloy material is helping Biowave win and retain customers among sports teams, many of which purchase multiple devices for their players. Its high performance under rugged conditions helps generate recommendations and repeat orders. Currently, nearly 40 professional teams and 17 college programs use BiowavePRO.

Competitive differentiation: The Biowave device is often referred to by its blue color, helping the product stand out from competitors. When the technology was profiled on television, the attractive color caught audiences' attention and generated many inquiries.

Usability: Versalloy material makes a major contribution to the ruggedness and versatility of the device. Its toughness prevents the bumpers from shredding or marring, even with extensive handling.

Portability: The ability to use the BiowavePRO practically anywhere is of great value to mobile sports teams. Versalloy TPV contributes light weight and a sure grip that is important for safety and precision.

Cost savings: Molding the bumpers separately and inserting them into the housing keeps costs down yet provides the seamless appearance of overmolding. Creating a two cavity tool for the bumpers saved PTA 70% over the cost of an overmolding tool, and reduced scrap rates typical with overmolded housings by 80%.

Product choices often vary by region due to differences in regulatory and agency requirements, availability and other key factors. Please contact your nearest sales office for assistance in choosing the right solution for your locale.

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