

News in Medical Tubing & Materials

Two innovations in medical tubing and more than a dozen new materials, coatings, and adhesives were on display at June's Medical Design & Manufacturing (MD&M) East show in Philadelphia. Here's a quick rundown of these developments:

ADVANCE IN TUBING

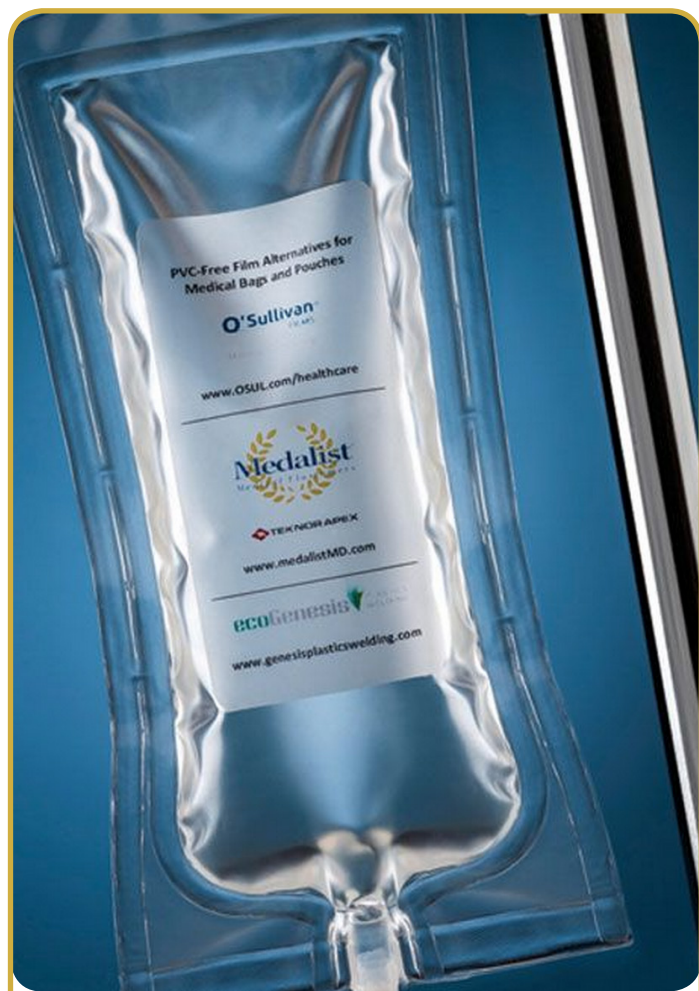
In the last couple of years, Teleflex Medical OEM, Gurnee, Ill., (teleflexmedicaloem.com) became one of the first to coextrude medical tubing using EFEP fluoropolymer and nylon 12 or PEBA-type TPEs. Unlike other fluoropolymers (PTFE and FEP) used to provide lubricity in multi-layer tubing for applications such as catheters, EFEP bonds well with polyamide-based resins without the need for chemical etching. That preserves clarity, which is sacrificed by etching, and also saves a manufacturing step and the attendant cost. EFEP reportedly adheres both to other plastics and to wire coil or braid reinforcements without risk of delamination.

Sources at Daikin America, Inc., Orangeburg, N.Y. (daikin-america.com), the only supplier of EFEP, says other tubing manufacturers are now developing products based on this concept.

A second innovation from Teleflex Medical OEM, which came on the market last fall, is an overmolding process for join-ing tubing segments of different diameters. The usual approach is heat-shrinking a segment of bonding material over the joint between the two tubing components in devices such as catheters. This has the drawback of creating a rigid bond site that limits catheter flexibility. The new approach allows the transition section to be rigid or flexible as desired without interfering with the strength of the mating tube components. Overmolding also allows joining tubes of wider diameter differences (beyond the usual 1.1:1 ratio), the company reports.

NEW MATERIALS, ADHESIVES, COATINGS

Thermoplastic elastomers were the most numerous category of materials introduced at MD&M East. Teknor Apex Co., Pawtucket, R.I., (teknorapex.com) unveiled what's said to be the first medical-grade TPEs that can be calendered. Calendering reportedly provides better thickness uniformity, more consistent physical properties, and greater thermal stability than film extrusion. While previous TPEs reportedly have not performed well in calendering, Teknor fine-tuned the rheology of its



Teknor Apex introduced what's said to be the first TPE suitable for calendering into films for bags, pouches, and bladders.

Medalist MD-500 Series TPEs for this process in collaboration with O'Sullivan Films, Winchester, Va. (osul.com). Teknor also worked with Genesis Plastics Welding, Indianapolis (genesisplasticswelding.com) to show that MD-500 TPEs can be radiofrequency (RF) welded. Teknor says its TPEs have proven to be "fully comparable to PVC in processing, bonding, assembly, and clinical handling." This development is said to eliminate the usual disadvantages of TPEs vs. PVC in film applications such as fluid drainage and storage bags, cushioning bladders, and surgical pouches.