

COC Resin Replaces Glass in Prefilled Syringes

Plas-Tech Engineering Inc. (Lake Geneva, WI) has announced that it is the first North American custom molder to manufacture cyclic olefin copolymer (COC) single-dose syringes for prefilled pharmaceutical applications for the general market. TOPAS 6013 COC resin from TOPAS Advanced Polymers Inc. (Florence, KY) is used as a replacement for glass in single-dose syringes for cosmetic facial drug treatments.

Nearly five years of research and development work are behind the project, according to the company. "Through our extensive work, we defined the process parameters, determined the limits and capabilities of COC, and achieved high quality and consistency," said Scott Smith, vice president of sales and marketing for Plas-Tech Engineering, in a press release. "This also involved new considerations for mold design and new techniques for gating and venting."



TOPAS 6013 COC offers high transparency along with shatter resistance. COC can be used to eliminate breakage during filling and shipping and at point of care. According to its manufacturer, "excellent moisture barrier can help extend the shelf life of some pharmaceutical solutions over three years – an achievement that can't be met by competing thermoplastics like polycarbonate or polypropylene, which are used today in less demanding syringe applications," it was stated in the release.

TOPAS 6013 COC also exhibits low protein adsorption and has lower adsorption of most drug preservatives compared with other materials. Exhibiting purity and biocompatibility, TOPAS 6013 meets the requirements of U.S. Pharmacopoeia Class VI and ISO 10993.

TOPAS Advanced Polymers adds that these syringes offer unique molded-in design features, which allows greater part consolidation when compared with more-costly multipiece glass assemblies. Molded COC syringes also give pharmaceutical companies shorter lead times than glass, allowing them greater flexibility in testing.

Plas-Tech sells syringes in 0.5-ml to 5.0-ml sizes to pharmaceutical companies in the United States. The company is also pursuing a sales agreement through an international distribution channel. Plas-Tech is working with other TOPAS COC injection molding formulations to develop a greater range of performance for new market opportunities in syringes, vials, and diagnostic equipment, said Smith.