The Glass "Alternative" for

Prefllled Pharmaceuticals

**[www.plastechengineering.com](http://www.plastechengineering.com)**

Benefits Over Glass

Cost: 1/4 to 1/10 the cost of glass syringe luer lock syringe assemblies Shatter Resistance: Will not shut down pharma filling production line Weight: <50% that of glass thus reducing shipping costs

Design Flexibility: Finger grips, luer tip style, back stop - molded in features

Very Low Protein Absorption

Benefits over PC and PP

BPA Free

Higher Moisture and Gas Barrier for Greater Shelf Life

Better Optical Properties and High Transparency

Better Chemical Resistance and Biocompatibility Characteristics

Sterilizable: Steam, Gamma, ETO, E-Beam Very Pure with Near Zero Out Gassing Very Low Protein Absorption

Material Options

Cyclo Olefin Polymer (COP), manufatured by Zeon Chemical L.P (Zeonex®) Cyclic Olefin Copolymer (COC), manufactured by Topas Advanced Polymers

Water Absorption

< 0.01%

Benefit: Shelf Life

Air Permeability

Depends on Wall Thickness

Benefit: Shelf Life better than PP or PC, but less than glass

Chemical Resistance

Very good when compared to glass

Superior to PC and PP

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ISO 9001:2008

FM 545128

FDA/GMP Compliant

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ISO 13485:2003