Resilient Plastics in the Cold Chain

Single-layer fluoropolymer bags built for biopharmaceutical applications

Modern pharmaceutical bioprocessing often requires the use of a “Cold Chain”—an end-to-end temperature-controlled supply chain and work environment to ensure that compounds stay inert. However, single-use plastics often become brittle in cold temperatures, leading to bag failures and costly product loss. Entegris fluoropolymer bags are different. Here’s how:

**SINGLE-USE BAG CONSTRUCTION**

Typical single-use plastic bags are constructed of five layers.

**MULTILAYER FILMS**

Entegris Aramus 2D single-use bag assemblies use a single layer of high-grade, gamma stable fluoropolymer film instead of multiple layers, which provides better protection against external contaminants, extractables and leachables (E&L), and provides better robustness at extreme temperatures.

**SINGLE-LAYER FLUOROPOLYMER**

The fluoropolymer film used in the Aramus bag assembly is engineered to retain its resiliency at cold chain temperatures down to -196°C.

**MULTILAYER FILMS**

The materials in a multilayer bag have different glass transition temperatures, leading to delamination, contamination, and product loss.

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**COLD-CHAIN PERFORMANCE**

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**USING PLASTICS IN COLD CHAIN APPLICATIONS**

**STERILIZATION WITH GAMMA RADIATION**

Aramus bag assemblies are built to withstand gamma irradiation, eliminating material degradation and extractable concerns found in common sterilization methods.

**SAFE HANDLING**

Accidents happen but they don’t need to lead to costly and hazardous spills. Frozen one-liter Aramus bag assemblies have been shown to be resilient to drops of up to one meter.

**COLLECTION**

Aramus single-use bag assemblies come in a variety of sizes and configurations that are compatible with common bulk drug substance and bioprocess collection operations.

Learn More

www.entegris.com/cold-chain