

Freeze-Pak™ with FP-FLEX™

An Aseptic Solution for Cryogenic Applications

- Bio-containers with integrated tubing designed for cryogenic storage and transport
- Used in closed-system processing steps

Benefits

- DEHP-free options available (Versions A and C)
- Tubing and containers tested and validated to -196°C
- Post-thaw aseptic transfer via tube-to-tube connection
- Designed for storage using compatible freezing cassettes
- Reduces handling and seed train expansion steps
- FP-FLEX tubing compatible with C-FLEX® 374 using Terumo SCD® IIB sterile tube welder (inquire for information on other tubing combinations)

Standard Applications

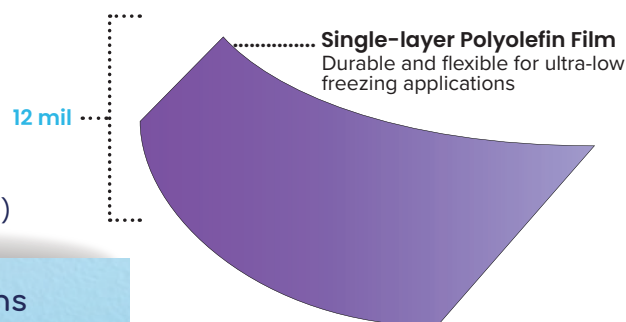
- Intermediate frozen product storage
- Working cell banks
- Regenerative medicine

Customizable Options

- Connections
- Tubing
- Freeze-Pak™ with FP-FLEX can be used within a custom manifold design



Freeze-Pak™ Film



Ordering Information

Catalog #	Description	Optimal Volume at -196°C	Case Qty
DEHP-free			
FP-FLEX50A	50 mL max fill volume, (2) FP-FLEX™ lines (8" L; 1/8" ID x 1/4" OD), sealed	10 – 30 mL	25
FP-FLEX250A	250 mL max fill volume, (2) FP-FLEX™ lines (8" L; 1/8" ID x 1/4" OD), sealed	30 – 70 mL	25
FP-FLEX500A	500 mL max fill volume, (2) FP-FLEX™ lines (8" L; 1/8" ID x 1/4" OD), sealed	55 – 100 mL	25
FP-FLEX750A	750 mL max fill volume, (2) FP-FLEX™ lines (8" L; 1/8" ID x 1/4" OD), sealed	80 – 190 mL	25
FP-FLEX1000A	1000 mL max fill volume, (2) FP-FLEX™ lines (8" L; 1/8" ID x 1/4" OD), sealed	180 – 380 mL	25
FP-FLEX50C	DEHP-free; 50 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	10 – 30 mL	25
FP-FLEX250C	DEHP-free; 250 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	30 – 70 mL	25
FP-FLEX1000C	DEHP-free; 1000 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	180 – 380 mL	25
Made with DEHP			
FP-FLEX50B	50 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	10 – 30 mL	25
FP-FLEX250B	250 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	30 – 70 mL	25
FP-FLEX500B	500 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	55 – 100 mL	25
FP-FLEX750B	750 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	80 – 190 mL	25
FP-FLEX1000B	1000 mL max fill volume, (1) FP-FLEX™ line (8" L; 1/8" ID x 1/4" OD), sealed; 1 EVA line with 2 PVC leads (4" L; 0.118" ID x 0.160" OD) and female luers	180 – 380 mL	25

Film Physical Test Data (pre-gamma irradiation)

Property	Test Protocol	Typical Value(s)
Tensile Strength at Break, MD/TD (psi)	ASTM D882	3,200/2,900
Elongation at Break, MD/TD (%)	ASTM D882	650/700
Modulus at 100% Elongation, MD/TD (psi)	ASTM D882	550/500
Tear Resistance, MD/TD (lbf/in.)	ASTM D1004	200/250
Low Temp. Brittleness (Masland) (°C)	ASTM D1790	Below -100
Glass Transition Temperature (T _g)	DSC	-48°C
Specific Gravity (g/cm ³)	ASTM D792	0.92
Particulates	USP <788>	Pass
Oxygen Transmission Rate (cm ³ /M ² /24 hrs @ 23°C, 0% RH)	ASTM D3985	2,200
Carbon Dioxide Transmission Rate (cm ³ /M ² /24 hrs @ 23°C, 0% RH)	ASTM F2476	9,000
Moisture Vapor Transmission (g/M ² /24 hrs @ 23°C)	ASTM F1249	3.9

Test performed on 0.014" film

FP-FLEX™ Physical Test Data (pre-gamma irradiation)

Property	Test Protocol	Typical Value
Specific Gravity (g/cm ³)	ASTM D792	0.89
Tensile Stress 100% Strain (MPa)	ASTM D412	2.41
Tensile Strength — Break (MPa)	ASTM D412	7.93
Tensile Elongation — Break (%)	ASTM D412	700
Tear Strength (kN/m)	ASTM D624	41.2
Durometer Hardness — (Shore A)	ASTM D2240	55
Brittleness Temperature (°C)	ASTM D746	-60

Final Container Biocompatibility Test Data (post-gamma irradiation)

Property	Test Protocol	Typical Value
USP Class VI	USP <88>	Pass
Cytotoxicity	USP <87> / ISO 10993-5	Pass
Hemolysis	ISO 10993-4	Pass

Post Freeze-Thaw Welding FP-FLEX™ to C-FLEX®*

Property	Test Protocol	Typical Value
Integrity	Pressure leak test (1 psi)	21 Samples/Pass
Flow Rate	Weld junction flow rate ≥ 500 mL/minute	21 Samples/Pass
Weld Strength	Freeze/thaw FP-FLEX welded to C-Flex	Avg.=12.85 lbf



Contact us today at www.chartermedical.com

* FP-FLEX™ (1/8" ID X 1/4" OD) welding to C-Flex® 374 completed with the Terumo SCD(reg) IIB sterile tube welder

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