PharMed® BPT Biocompatible Peristaltic Pump Tubing

High Performance Peristaltic Pump Tubing

PharMed® BPT tubing has been formulated to withstand the rigors of peristaltic pumping action while providing the biocompatible fluid surface required in sensitive bioprocess applications. With its superior flex life characteristics, PharMed BPT tubing simplifies biopharmaceutical manufacturing processes by reducing production downtime due to pump tubing failure.

Simplifies Cleaning and Sterilization

PharMed® BPT tubing is ideal for use in clean-in-place and steam-in-place cleaning and sterilization systems. It is compatible with virtually all commercial cleaners and sanitizers and can be repeatedly autoclaved up to five cycles without affecting overall service life. PharMed BPT also withstands 50kGy of gamma radiation with minimal effect on physical properties.

Superior Barrier Properties

PharMed® BPT tubing is less permeable to gases and vapors than silicone tubing. It is ideal for protecting sensitive fluids in a variety of biopharmaceutical operations including media mixing, cell culture, harvest, and purification. PharMed BPT tubing has very good general chemical resistance and excellent acid, alkali, and oxidation resistance. Opaque to visible and UV light, PharMed BPT tubing will help to protect light-sensitive fluids.

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Application

- Cell Harvest
- Media Process Systems
- Aseptic Filling
- Shear-Sensitive Fluid
- Vaccine Manufacturing
- Diagnostic Test Products
- Bio-pharmaceutical Operation
- Bioreactor Process Lines
- Filtration & Fermentation

Technical Data Sheet

Features and Benefits:

- Ultra-low particulate spallation.
- Outlasts silicone tubing in peristaltic pumps.
- Provides an excellent barrier with very low permeability.
- Withstands repeated autoclaving.
- Withstands repeated CIP and SIP cleaning and sterilization.
- Temperature range -59°C to 135°C (-75°F to 275°F).
- Sterilizable by gamma irradiation, ETO, and autoclave.
- All formulas are Animal-Derived Component Free.
- All-inclusive Validation Guide and the Regulatory Information Overview (RIO) are available for customers upon request.

Chemical Resistance:

Chemical Type	PharMed® Compatibility
Alkali	Excellent
Acids, Dilute/Weak	Excellent
Bases, Dilute/Weak	Excellent
Salts	Excellent
High-purity Water	Excellent
Oil / Water Emulsion	Excellent
Alcohol	Excellent

Note: A comprehensive chemical compatibility chart is available upon request.

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When some chemical types are not suitable, safe, or chemically compatible with PharMed® BPT, Saint-Gobain offers alternative tubing series. Below, you will find chemicals that are incompatible with PharMed® BPT and the suggested alternative Saint-Gobain tubing series:

Chemical Type	Alternative Saint-Gobain Tubing Series
Acids, Concentrated / Strong	C-Flex
Bases, Concentrated / Strong	C-Flex
Alcohol	Sani-Tech
Low Spallation Peristaltic Pump Tubing	PharmaPure®
Ketones & Organic Solvent	PharmaFluor FEP

Physical Properties:

Property	ASTM Method	Formulations Value
Appearance		Opaque Cream
Durometer Hardness Shore A, 15 Sec	D2240	64
Maximum Service Temperature, °F (°C)		275°F (135°C)
Low Temperature Embrittlement, °F (°C)	D746	-75°F (-59°C)
Water Absorption, % 24 hrs. @ 23°C	D570	0.30

Unless otherwise noted, all tests were conducted at room temperature (73°F). Values shown were determined on 0.075" thick extruded strip or 0.075" thick molded ASTM plaques or molded ASTM durometer buttons.

Sterilization Methods:

Autoclavable 30 min at 121 °C

Gamma Irradiation up to 50 kGy

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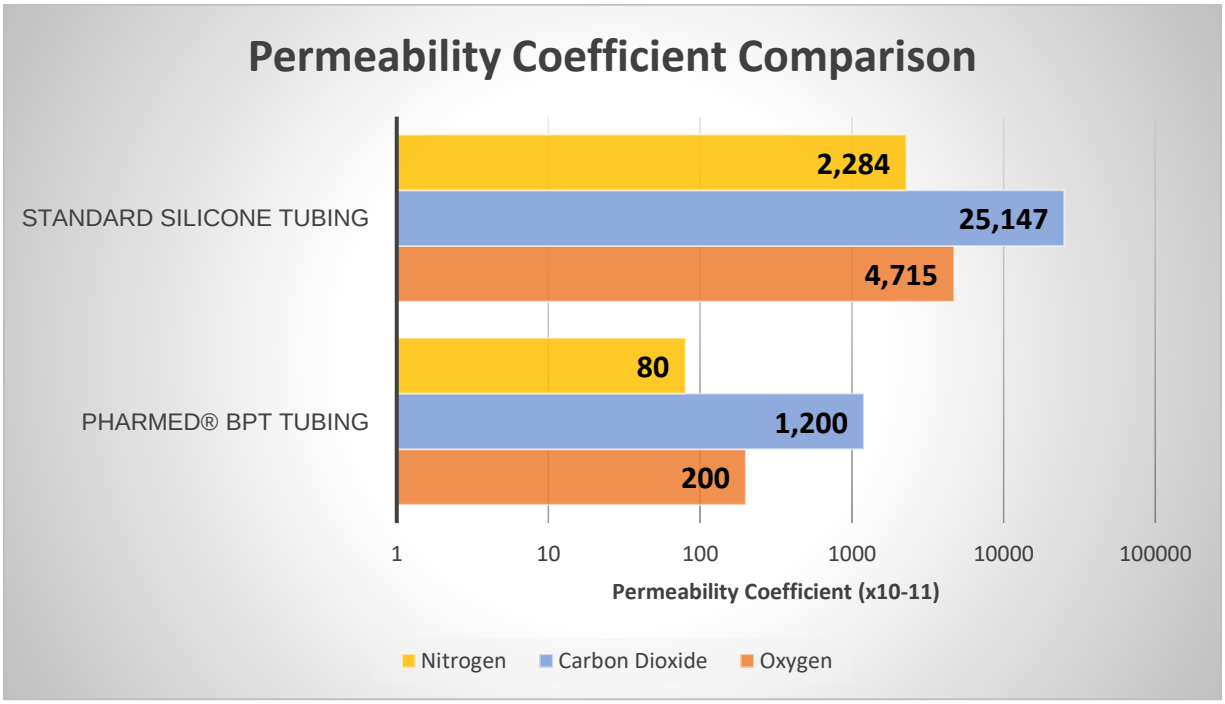
Regulatory Compliance (Biocompatibility, Physicochemical & Extractable Testing):

PharMed® BPT Validation Summary		
Test	**Standard**	**Value or Rating**
Biological Reactivity Tests, In Vitro –Gamma Irradiated	USP <87>	Passed
Biological Reactivity Tests, In Vitro – Autoclaved	USP <87>	Passed
Biological Reactivity Tests, In Vivo – Gamma Irradiated	USP <88> Class VI	Passed
Biological Reactivity Tests, In Vivo – Autoclaved	USP <88> Class VI	Passed
Limulus Amebocyte Lysate Endotoxin	USP <85>	Passed
Bioburden	ISO 11737-1	Passed
Subvisible Particulate	USP <788>	Passed
Extractables Data	Saint-Gobain Protocol	N/A

Permeability Coefficient Comparison:

Permeability Coefficient =

$$\frac{amount\ of\ gas\ (cm3)\ x\ tubing\ wall\ thickness\ (cm)}{surface\ area\ of\ tubing\ ID\ (cm3) x\ time\ (\text{sec})\ x\ pressure\ drop\ across\ tubing\ wall\ (cm\ Hg)}$$



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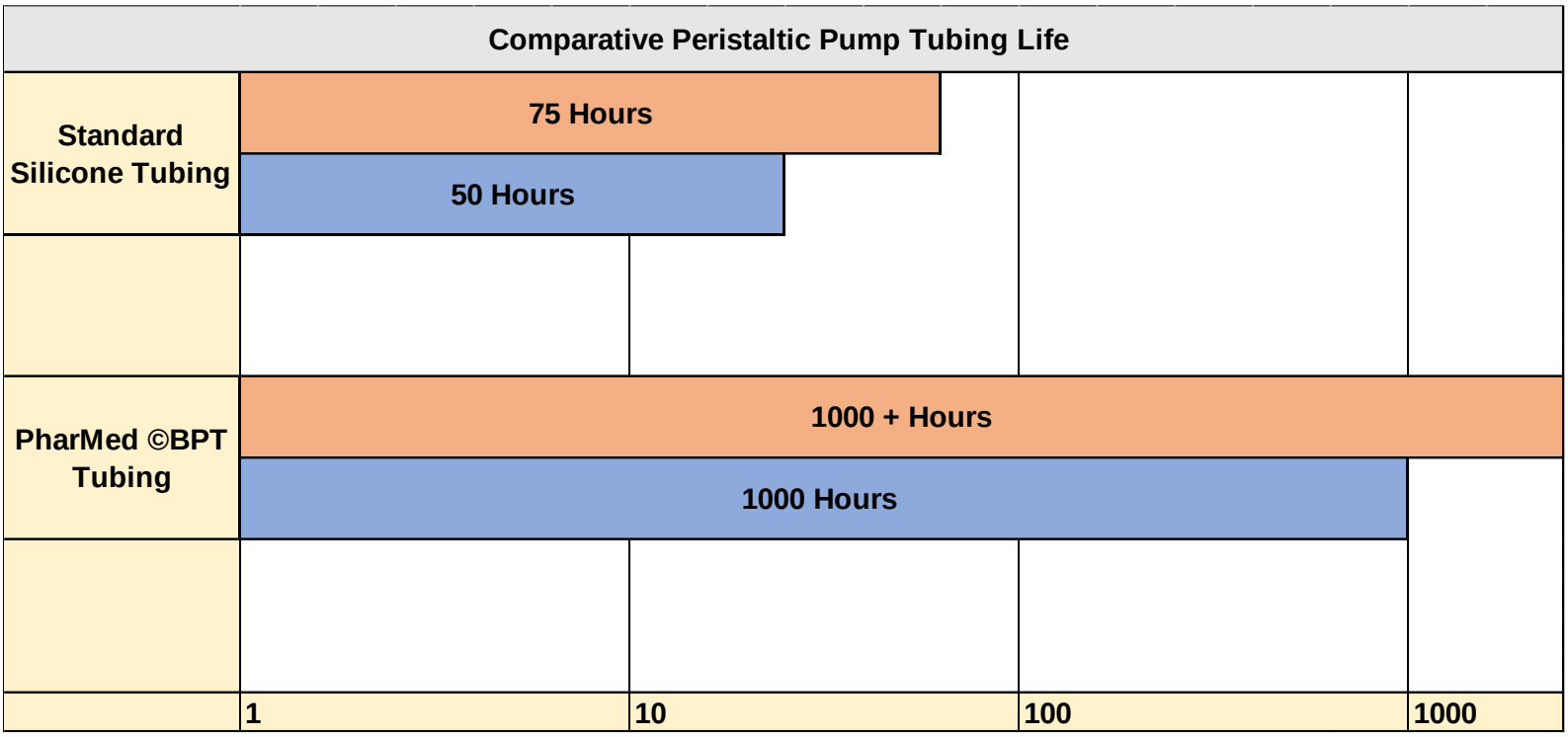
Comparative Peristaltic Pump Tubing Life:

The table below depicts hours until tubing rupture of 1/4" (6.4mm) ID x 3/8" (9.5mm) OD tubing. In each case, a 3-roller pump head was utilized operating at 600 rpm at room temperature 73°F (23°C).



10 psi back pressure

0 psi back pressure

The performance of tubing in peristaltic pumping applications is affected by the conditions of use and equipment utilized, along with size and wall thickness of the tubing tested. The data above is presented for information only and should not be utilized for specific purposes.

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PharMed® BPT Biocompatible Peristaltic Pump Tubing Standard Size:

PharMed® BPT Standard Sizes									
Part Number	I.D. Inches (mm)	O.D. Inches (mm)	Wall Thickness Inches (mm)	Length Feet (m)	Minimum Bend Radius Inches (mm)	Max. Suggested Working Pressure at		Vacuum Rating In. Hg (mm Hg)	
						73°F *psi (bar)	180°F *psi (bar)	73°F (23°C)	180°F (82°C)
AY242605	0.020 (0.5)	0.145 (3.7)	1/16 (1.6)	25 (7.6)	1/8 (3.2)	115 (7.9)	72 (5.0)	29.9 (760)	29.9 (760)
AY242606	1/32 (0.8)	5/32 (4)	1/16 (1.6)	25 (7.6)	1/8 (3.2)	78 (5.4)	49 (3.4)	29.9 (760)	29.9 (760)
AY242002	1/16 (1.6)	1/8 (3.2)	1/32 (0.8)	25 (7.6)	1/4 (6.4)	24 (1.7)	14 (1.0)	29.9 (760)	29.9 (760)
AY242003	1/16 (1.6)	3/16 (4.7)	1/16 (1.6)	25 (7.6)	1/8 (3.2)	43 (3.0)	27 (1.9)	29.9 (760)	29.9 (760)
AY242005	3/32 (2.4)	7/32 (5.5)	1/16 (1.6)	25 (7.6)	1/4 (6.4)	30 (2.1)	19 (1.3)	29.9 (760)	29.9 (760)
AY242006	1/8 (3.2)	3/16 (4.8)	1/32 (0.8)	25 (7.6)	1/2 (12.7)	13 (0.9)	8 (0.6)	25(635)	15 (381)
AY242007	1/8 (3.2)	1/4 (6.4)	1/16 (1.6)	25 (7.6)	1/2 (12.7)	24 (1.7)	15 (1.0)	29.9 (760)	29.9 (760)
AY242012	3/16 (4.8)	5/16 (7.9)	1/16 (1.6)	25 (7.6)	5/8 (15.8)	17 (1.2)	10 (0.7)	29.9 (760)	27 (686)
AY242017	1/4 (6.4)	3/8 (9.5)	1/16 (1.6)	25 (7.6)	7/8 (22.2)	13 (0.9)	8 (0.6)	25 (635)	15 (381)
AY242019	1/4 (6.4)	1/2 (12.7)	1/8 (3.2)	25 (7.6)	3/4 (19.0)	24 (1.7)	15 (1.0)	29.9 (760)	29.9 (760)
AY242022	5/16 (7.9)	7/16 (11.1)	1/16 (1.6)	25 (7.6)	1-1/4 (31.7)	11 (0.8)	6 (0.4)	15 (381)	9 (229)
AY242027	3/8 (9.5)	1/2 (12.7)	1/16 (1.6)	25 (7.6)	1-3/8 (34.9)	9 (0.6)	5 (0.3)	10 (254)	6 (152)
AY242029	3/8 (9.5)	5/8 (15.9)	1/8 (3.2)	25 (7.6)	1-1/8 (28.5)	17 (1.2)	10 (0.7)	29.9 (760)	27 (686)
AY242038	1/2 (12.7)	3/4 (19.0)	1/8 (3.2)	25 (7.6)	1-1/8 (28.5)	10 (0.7)	8 (0.6)	25 (635)	15 (381)
AY242046	5/8 (15.9)	7/8 (22.2)	1/8 (3.2)	25 (7.6)	2-3/4 (69.8)	11 (0.8)	6 (0.4)	15 (381)	9 (229)
AY242053	3/4 (19.0)	1 (25.4)	1/8 (3.2)	25 (7.6)	3-1/2 (88.9)	9 (0.6)	5 (0.3)	10 (254)	6 (152)

*Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599.

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