

Saint-Gobain
Life Sciences –
Bioprocess Solutions



PharmaPure®

Low Spallation Peristaltic Pump Tubing

PharmaPure® Flexibility

PharmaPure® is a premium, low spallation, biologically compatible peristaltic pump tubing developed especially for pharmaceutical, biotechnology, and laboratory applications. This tubing provides excellent pump life with ultra-low particulate spallation and very low gas permeability compared to standard silicone tubing.

Lower Spallation, Lower Risk of Contamination

The superior flex life characteristics of PharmaPure® simplify biopharmaceutical manufacturing processes by reducing production downtime due to pump tubing failures.

Its excellent wear properties allow the product to provide extremely low rates of spallation as compared to silicone and other alternate materials.

Because PharmaPure® has low permeability and lower absorption characteristics, it is ideal for protecting sensitive fluids from gas ingress and concentration changes due to fluid absorption.

Fully Characterized and Biocompatible

PharmaPure® tubing comes complete meeting the requirements of USP <88> Class VI, and/or USP <87>, and/or ISO 10993-5 which can be found in the Validation Guide Summary on the Saint-Gobain Bioprocess Solutions website.

Features / Benefits

- Ultra-low particulate spallation
- Outlasts silicone tubing in peristaltic pumps
- Provides an excellent barrier with very low permeability

Typical Applications

- Cell harvest and media process systems
- Vaccine manufacturing
- Bioreactor process lines
- Aseptic filling
- Diagnostic test products
- Production filtration and fermentation

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PharmaPure® Tubing Standard Sizes

Part Number	I.D. inches (mm)	O.D. inches (mm)	Wall Thickness inches (mm)	Length feet (m)	Minimum Bend Radius inches (mm)	Average Burst Pressure at		Max. Suggested Working Pressure at		Vacuum Rating In. Hg (mm Hg)	
						73°F *psi (bar)	180°F *psi (bar)	73°F *psi (bar)	180°F *psi (bar)	73°F (23°C)	180°F (82°C)
AL242606	1/32 (0.8)	5/32 (4)	1/16 (1.6)	25 (7.6)	1/2 (13)	190 (13)	115 (8)	38 (2.6)	23 (1.6)	29.9 (760)	29.9 (760)
AL242002	1/16 (1.6)	1/8 (3.2)	1/32 (0.8)	25 (7.6)	1/2 (13)	100 (7)	65 (4.5)	20 (1.4)	13 (0.9)	29.9 (760)	29.9 (760)
AL242003	1/16 (1.6)	3/16 (4.7)	1/16 (1.6)	25 (7.6)	1/2 (13)	135 (9.5)	90 (6)	27 (1.9)	18 (1.2)	29.9 (760)	29.9 (760)
AL242005	3/32 (2.4)	7/32 (5.5)	1/16 (1.6)	25 (7.6)	1/2 (13)	135 (9.5)	65 (4.5)	27 (1.9)	13 (0.9)	29.9 (760)	29.9 (760)
AL242006	1/8 (3.2)	3/16 (4.8)	1/32 (0.8)	25 (7.6)	3/4 (19)	50 (3.5)	40 (3)	10 (0.7)	8 (0.6)	29.9 (760)	10 (254)
AL242007	1/8 (3.2)	1/4 (6.4)	1/16 (1.6)	25 (7.6)	3/4 (19)	120 (8.5)	60 (4)	24 (1.7)	12 (0.8)	29.9 (760)	29.9 (760)
AL242012	3/16 (4.8)	5/16 (7.9)	1/16 (1.6)	25 (7.6)	3/4 (19)	100 (7)	50 (3.5)	20 (1.4)	10 (0.7)	29.9 (760)	25 (635)
AL242017	1/4 (6.4)	3/8 (9.5)	1/16 (1.6)	25 (7.6)	1-1/4 (32)	75 (5)	35 (2.5)	15 (1.0)	7 (0.5)	29.9 (760)	15 (381)
AL242019	1/4 (6.4)	1/2 (12.7)	1/8 (3.2)	25 (7.6)	1-1/4 (32)	130 (9)	65 (4.5)	26 (1.8)	13 (0.9)	29.9 (760)	29.9 (760)
AL242022	5/16 (7.9)	7/16 (11.1)	1/16 (1.6)	25 (7.6)	1-1/2 (38)	65 (4.5)	35 (2.5)	13 (0.9)	7 (0.5)	29.9 (760)	10 (254)
AL242027	3/8 (9.5)	1/2 (12.7)	1/16 (1.6)	25 (7.6)	1-3/4 (44)	50 (3.5)	30 (2)	10 (0.7)	6 (0.4)	15 (381)	5 (127)
AL242029	3/8 (9.5)	5/8 (15.9)	1/8 (3.2)	25 (7.6)	1-1/2 (38)	95 (6.5)	50 (3.5)	19 (1.3)	10 (0.7)	29.9 (760)	29.9 (760)
AL242038	1/2 (12.7)	3/4 (19.0)	1/8 (3.2)	25 (7.6)	2-1/2 (64)	75 (5)	35 (2.5)	15 (1.0)	7 (0.5)	29.9 (760)	20 (508)
AL242046	5/8 (15.9)	7/8 (22.2)	1/8 (3.2)	25 (7.6)	2-3/4 (70)	60 (4)	30 (2)	12 (0.8)	6 (0.4)	25 (635)	10 (254)
AL242053	3/4 (19.0)	1 (25.4)	1/8 (3.2)	25 (7.6)	3-3/4 (95)	50 (3.5)	20 (1.5)	10 (0.7)	4 (0.3)	15 (381)	5 (127)

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

The values listed for working and burst pressures are derived from tests conducted under controlled laboratory conditions. Many factors will reduce the tubing's ability to withstand pressures including temperature, chemical attack, stress, pulsation and the attachment to fittings. The values shown above are for information only and should not be utilized for specification purposes.

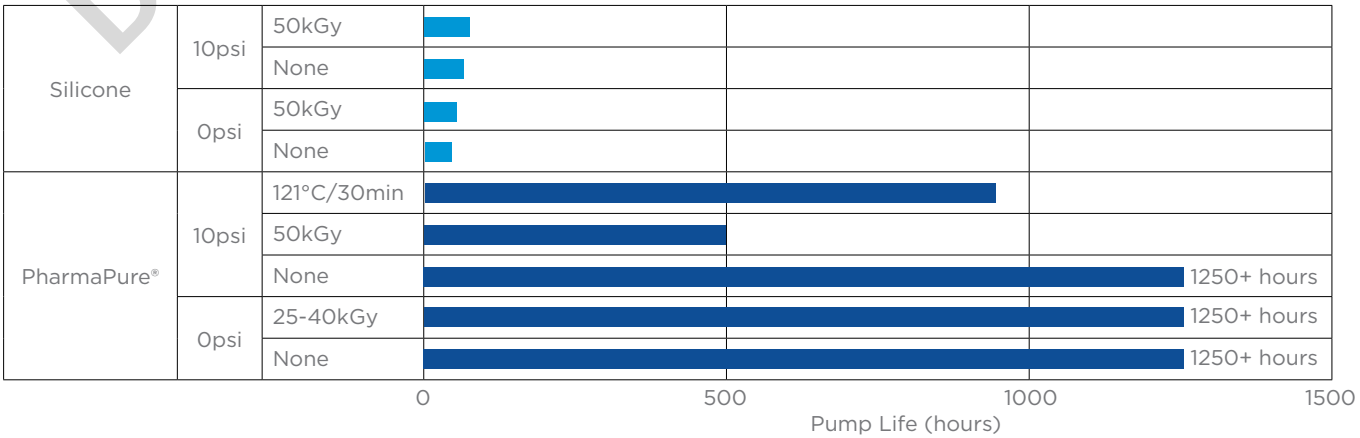
Typical Physical Properties

Property	ASTM Method	Value or Rating
Appearance	--	Opaque White
Durometer Hardness Shore A, 15 Sec	D2240-00	65
Maximum Service Temperature., °F (°C)	--	275 (135)
Low Temperature Embrittlement °F (°C)	D746-98	-89 (-67)
Water Absorption, %, 24 hours @ 73°F (23°C)	D570-98	0.04

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.

Peristaltic Pump Life Comparison

The table below depicts hours until failure of ¼" ID x 3/8" OD tubing. In each case, a 4-roller pump head was utilized operating at 300 RPM under room temperature (73°F).

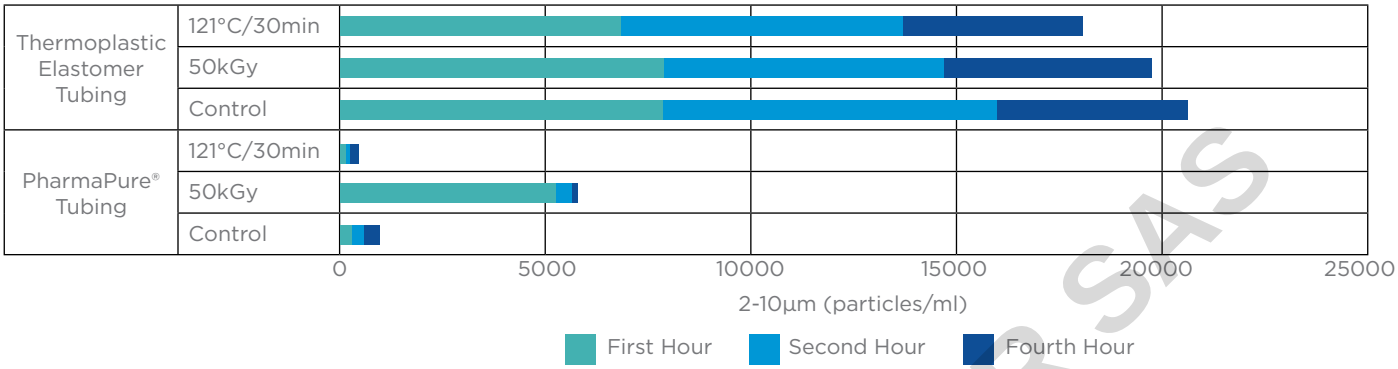


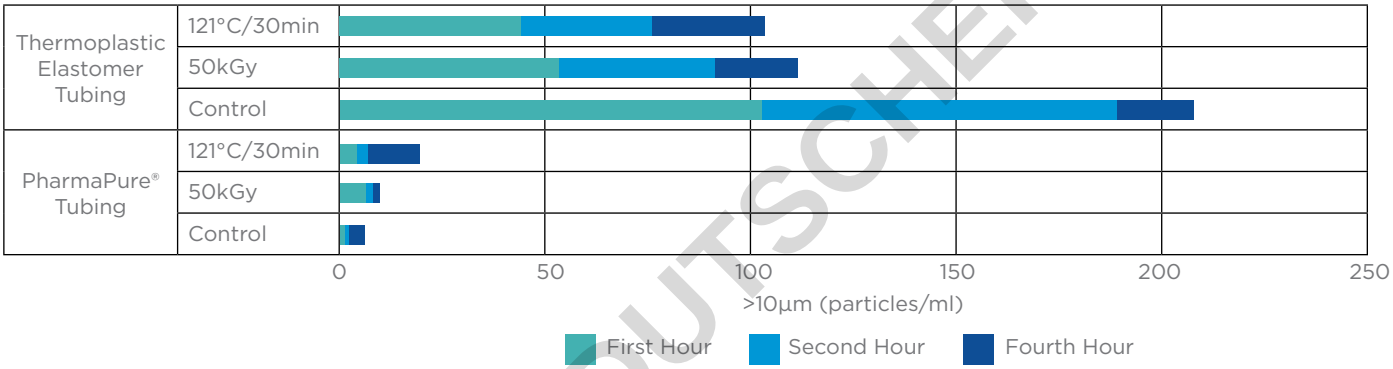
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Spallation Comparison

The following test data summarizes the spallation results of select tubing used in a peristaltic pump. In each case 1/16" ID tubing was used in a 2x 6-roller pump head operating at 300 RPM under room temperature (73°F). Spallation is measured with flow imaging cytometery that counts all particles and oil droplets down to 2µm. Results from a minimum of 3 samples were averaged to obtain values





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 specification purposes.

Sterilization Methods

Autoclavable	**30 min at 121°C**
Gas (Ethylene Oxide)	Yes
Irradiation	up to 5.0MRad (50kGy)

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