



Tygon® XL-60

Long Life Pump Tubing for Food and Beverage Applications

Superior Performance in Peristaltic Pumps

Designed specifically for use in peristaltic pump applications, Tygon® XL-60 maintains a pump life of over 500 hours. With a durometer hardness of Shore A 60, it is extremely flexible and exhibits superior flex life, reducing downtime due to pump tubing failure (see “Comparative Peristaltic Pump Tubing Life” on back). Tygon XL-60 can be considered an alternative to silicones and PVC when longer pump tubing life is required.

Excellent Physical Properties

Tygon XL-60 is translucent in color and has excellent chemical resistance to a wide range of fluids, including acids and bases. It also exhibits excellent resistance to ozone, oxygen and sunlight aging. Tygon XL-60 remains flexible at -40°F and is temperature resistant up to 250°F.

Low Extractables

Tygon XL-60 has low extractables, greatly reducing the risk of fluid contamination in applications such as ink transfer. It does not impart taste to fluids being transferred, making it an ideal choice for food and beverage applications.

Regulatory Compliance*

Tygon XL-60 complies with FDA 21 CFR 177.1210 criteria, which are applicable for food contact applications, and is NSF listed under standard 51. It also complies with EU Regulation 10/2011 for plastics intended to come into contact with food.*

* For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance.

Features and Benefits

- DEHP free
- Long flex life in peristaltic pumps
- Temperature resistant up to 250°F
- Low extractables
- Alternative to PVC
- Clear and flexible
- Custom colors available

Regulatory Compliance

- FDA 21 CFR 177.1210
- NSF 51
- EU Regulation 10/2011

Typical Physical Properties

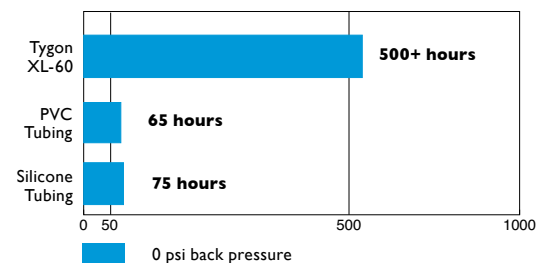
Property	ASTM Method	Value or Rating
Durometer Hardness (Shore A), 15 Sec	D2240-03	60
Color	–	Translucent
Tensile Strength, psi (MPa)	D412-98	1,630 (11.2)
Ultimate Elongation, %	D412-98	770
Tear Resistance lb-f/in. (kN/m)	DI004-03	190 (33.3)
Specific Gravity	D792-00	0.90
Water Absorption, % 24 hrs. @ 73°F (23°C)	D570-98	0.07
Compression Set Constant Deflection, % @ 158°F (70°C) for 22 hrs.	D395-03 Method B	55
Brittleness by Impact Temp., °F (°C)	D746-98	-87 (-66)
Maximum Recommended Temperature*, °F (°C)	–	250 (121)
Dielectric Strength, v/mil (kV/mm)	DI49-97	550 (21.6)
Tensile Modulus, @ 300% Elongation, psi (MPa)	D412-98	555 (3.83)
Tensile Set, %	D412-98	100

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.

* Values based on static oven test at 0 psi.

Comparative Peristaltic Pump Tubing Life

The table below depicts hours until failure of 1/4" I.D. x 3/8" O.D. tubing. In each case, a 3-roller pump head operating at 600 rpm under room temperature (73°F) conditions was utilized. Tubing failure is measured in hours of use prior to rupture.



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.

Inventoried Sizes

Saint-Gobain Part Number	I.D. (inches)	O.D. (inches)	Wall Thickness (inches)	Length (feet)	Minimum Bend Radius (inches)	Max. Working Pressure at 73°F (psi)*	Vacuum Rating, In. of Mercury at 73°F
AN800003	1/16	3/16	1/16	50	1/2	35	29.9
AN800007	1/8	1/4	1/16	50	1/2	20	29.9
AN800012	3/16	5/16	1/16	50	3/4	13	29.9
AN800017	1/4	3/8	1/16	50	1	15	29.9
AN800022	5/16	7/16	1/16	50	1-1/2	11	20.0
AN800027	3/8	1/2	1/16	50	2	11	15.0
AN800038	1/2	3/4	1/8	50	2-1/2	15	29.9
AN800046	5/8	7/8	1/8	50	3	11	20.0
AN800053	3/4	1	1/8	50	4	11	20.0

* 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. It is imperative that the user conduct tests simulating the conditions of the application prior to specifying the tubing for use.

Relative Chemical Resistance Properties

Tubing Material	Acids			Bases		
	Conc.	Med.	Weak	Conc.	Med.	Weak
Tygon XL-60	G	G	E	G	G	E
PVC Tubing	F	E	E	E	E	E
Silicone Tubing	U	U	U	U	F	F

E = Excellent G = Good F = Fair U = Unsatisfactory
* All tests conducted at room temperature

Relative Permeability Coefficients

Tubing Material	Carbon Dioxide	Nitrogen	Oxygen
Tygon XL-60	1,116	62	186
Silicone Tubing	42,800	3,900	8,025

Permeability Coefficient ($\times 10^{-11}$) cc • cm / cm² • s • cmHg

Permeability Coefficient = $\frac{\text{amount of gas (cm}^3\text{)} \times \text{tubing wall thickness (cm)}}{\text{surface area of tubing I.D. (cm}^2\text{)} \times \text{time (seconds)}} \times \text{pressure drop across tubing wall (cmHg)}$

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NOTE: The data and details given in this document are correct and up to date. This document is intended to provide information about the product and possible applications. This document is not the product specification and does not provide specific features, nor does it guarantee product performance in specific applications. Saint-Gobain cannot anticipate or control the conditions of the field and for this reason strongly recommends that practical tests are conducted to ensure that the product meets the requirements of a specific application.

Tygon® is a registered trademark.