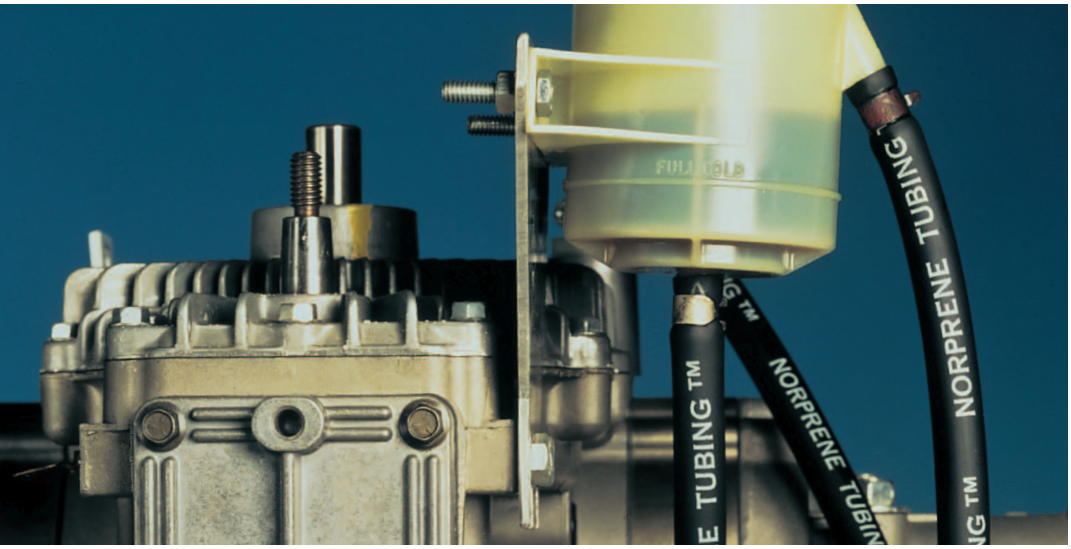
From the Makers of TYGON®

NORPRENE® Industrial Grade Tubing



For extended service in a wide variety of applications, Norprene® Industrial Grade Tubing outlasts virtually all multi-service rubber tubings.

High Performance Alternative to General Purpose Rubber Tubing

Norprene® Industrial Grade Tubing outperforms neoprene, EPDM and other general-purpose tubings in test after test and application after application. It will not weaken or crack after years of exposure to heat and ozone, providing long service in a wide range of applications such as gasketing, abrasion-resistant sleeving and cable insulation. Performance formulated for on-the-job reliability, Norprene® handles temperatures from -75˚F (-60˚C) to 275˚F (135˚C), allowing the use of one material with a broad range of temperatures. It is heat sealable and can be joined without fittings. It also has excellent resistance to inorganic (acids and bases) fluids.

Unequalled Life in Peristaltic Pump Applications

Peristaltic pumps are used in a wide range of markets and applications. The universal requirement common to these applications is the ability of the tubing to withstand the constant high flexural fatigue exerted by the pump rollers. Norprene® outlasts and outperforms virtually all other general service tubing in peristaltic pump applications due to its high flexural fatigue strength. *(For additional details on peristaltic pump tubings refer to the comprehensive Saint-Gobain Performance Plastics Peristaltic Pump Tubing section at www.tygon.com.)*

Ideal for Use in Vacuum Systems

Norprene® Industrial Grade Tubing is available in standard vacuum sizes that will withstand a full vacuum (29.9" [759mm] of mercury) at 73˚F (23˚C). Unlike typical rubber vacuum tubing, Norprene® resists the cracking and aging that are frequent causes of vacuum tubing failure.

Available in Food Grade and Reinforced Pressure Formulations

The unique properties of Norprene® tubing make it desirable for use in many food processing applications. For these applications, always specify Norprene® Food Process Tubing Formulation A-60-F.

Where elevated pressure capabilities are required, Norprene® Pressure Tubing Formulation A-60-F I.B. is available to withstand up to five times the pressure of non-reinforced Norprene® tubing. (*Refer to the Saint-Gobain Performance Plastics data page for additional information on these select tubing products.)*

FORMULATION A-60-G

Outlasts and outperforms neoprene, EPDM and other specialty rubber tubings

Features/Benefits

- Superior Weathering
- Abrasion Resistant
- Outstanding Flexural Fatigue Resistance
- Wide Temperature Range (-75˚F to 275˚F)
- Low Gas Permeability Versus Rubber Tubing
- Ozone* and UV Light Resistant

Typical Applications

- Soap and Disinfectant Dispensing
- Printing Ink Transfer
- Caustic Dispensing
- Plating and Etching Chemicals
- Wastewater Sampling
- Glass and Window Wash Systems
- Vacuum Pumps
- Cable Insulation
- Abrasion-Resistant Sleeving

*300pphm

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NORPRENE® A-60-G Inventoried Sizes

Saint-Gobain Part Number	I.D. (inches)	O.D. (inches)	Wall Thickness (inches)	Length (feet)	Minimum Bend Radius (inches)	Max. Working Pressure (psi)* at 73°F	at 180°F	Vacuum Rating, In. of Mercury at 73°F	at 180°F
AFL00003	1/16	3/16	1/16	50	1/4	34	21	29.9	29.9
AFL00007	1/8	1/4	1/16	50	1/2	19	12	29.9	29.9
AFL00008**	1/8	3/8	1/8	50	1/2	34	21	29.9	29.9
AFL00012	3/16	5/16	1/16	50	3/4	13	8	29.9	29.9
AFL00013	3/16	3/8	3/32	50	1/2	19	12	29.9	29.9
AFL00015**	3/16	9/16	3/16	50	1/4	34	21	29.9	29.9
AFL00017	1/4	3/8	1/16	50	7/8	10	6	29.9	15.8
AFL00018	1/4	7/16	3/32	50	3/4	15	9	29.9	29.9
AFL00019	1/4	1/2	1/8	50	3/4	19	12	29.9	29.9
AFL00020**	1/4	5/8	3/16	50	1/2	26	16	29.9	29.9
AFL00022	5/16	7/16	1/16	50	1-1/4	8	5	20.2	10.1
AFL00023	5/16	1/2	3/32	50	1.0	12	7	29.9	25.0
AFL00026**	5/16	13/16	1/4	50	1/2	28	17	29.9	29.9
AFL00027	3/8	1/2	1/16	50	1-3/8	7	4	14.1	7.0
AFL00028	3/8	9/16	3/32	50	1-1/2	10	6	29.9	15.0
AFL00029	3/8	5/8	1/8	50	1-1/8	13	8	29.9	27.7
AFL00032	7/16	9/16	1/16	50	2-1/4	6	4	5.0	0.0
AFL00036	1/2	5/8	1/16	50	3.0	6	3	15.0	0.0
AFL00037	1/2	11/16	3/32	50	2-1/4	8	5	20.0	10.0
AFL00038	1/2	3/4	1/8	50	1-1/8	10	6	29.6	15.6
AFL00045	5/8	13/16	3/32	50	3-1/4	7	4	10.0	5.0
AFL00046	5/8	7/8	1/8	50	2-3/4	8	5	20.0	9.9
AFL00053	3/4	1	1/8	50	3-1/2	7	4	13.9	6.9
AFL00062	1	1-1/4	1/8	50	5.0	6	3	5.0	5.0

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.

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

NORPRENE® A-60-G Typical Physical Properties

Property	ASTM Method	Value or Rating
Durometer Hardness Shore A, 15 Sec	D2240-97	61
Color	-	Black
Tensile Strength psi (MPa)	D412-98	1,000 (6.9)
Ultimate Elongation, %	D412-98	375
Tear Resistance lb-f/inch (kN/m)	D1004-94	120 (21)
Specific Gravity	D792-98	0.98
Water Absorption, % 24 hrs. @ 23°C	D570-98	0.30
Compression Set Constant Deflection, % @ 158°F (70°C) for 22 hrs.	D395-98 Method B	27
Brittleness By Impact Temp., °F (°C)	D746-98	-75 (-60)
Maximum Recommended Operating Temperature*, °F (°C)	-	275 (135)
Dielectric Strength v/mil (kV/mm)	D149-97	535 (21.1)
Tensile Modulus, @ 100% Elongation, psi (MPa) @ 300% Elongation, psi (MPa)	D412-98	410 (2.8) 800 (5.5)
Tensile Set, %	D412-98	47

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.

NORPRENE® TUBING IS NOT INTENDED FOR USE AS AN IMPLANT MATERIAL

NORPRENE™ is a Saint-Gobain Performance Plastics registered trademark.

HOW NORPRENE® Tubing Compares with Neoprene Tubing

The following information is based on tests conducted for 28 days at 73°F, unless otherwise noted. The information is based on reliable test results. Use as a guide only, taking into account such variables as temperature and fluid contamination in your own application.

Chemical Tested	Performance Norprene®	Neoprene
20% Ammonium Hydroxide	Excellent	Good
10% Sodium Hydroxide	Excellent	Fair
50% Sulfuric Acid	Excellent	Excellent
90% Sulfuric Acid	Fair	Failed
Methanol	Excellent	Excellent
37% Hydrochloric Acid	Excellent	Fair
Ethanol	Good	Good
50% Ethylene Glycol	Excellent	Excellent
Water: 28 days @ 220°F	Excellent	Fair
Air: 7 days @ 275°F	Good	Failed
Ozone: 100pphm, 40°C, 28 days	Excellent	Fair
Fatigue Resistance Ross Flex @ 100CPM	750,000 cycles – 1 inch cut growth	2,000 cycles – 0.1 inch cut growth
Hot Air Heat Aging, 7 days @ 275°F	+22% tensile, +9% elongation	Crumbled
Hot Air 7 days @ 220°F	+15% tensile, +14% elongation	-2% tensile, -75% elongation
Typical Environmental Resistance		
Ozone, 300pphm	Excellent	Good
Weather (U.V.)*	Excellent-Good	Good
Acids	Excellent	Good
Alkalis	Excellent	Good
Lubricating Oils	Fair	Fair
Gas Permeability	Fair	Good-Fair

These comparisons are based on published material properties and are not guaranteed for all samples or applications. Actual performance will vary, depending on finished part design and requirements.

***UV environmental resistance properties are influenced by additives.**

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Quality System ISO 9001 Accredited

IMPORTANT: It is the user's responsibility to ensure the suitability and safety of Saint-Gobain Performance Plastics tubing for all intended uses. Laboratory and clinical tests must be conducted in accordance with applicable regulatory requirements in order to determine the safety and effectiveness for use of tubing in any particular application.

For a period of 6 months from the date of first sale, Saint-Gobain Performance Plastics Corporation warrants this product to be free from defects in materials and workmanship. Our only obligation will be to replace any portion proving defective or at our option to refund the purchase price thereof. User assumes all other risk, if any, including the risk of injury, loss or damage, direct or consequential, arising out of the use, misuse or inability to use this product. THIS WARRANTY IS IN LIEU OF THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. No deviation is authorized.

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