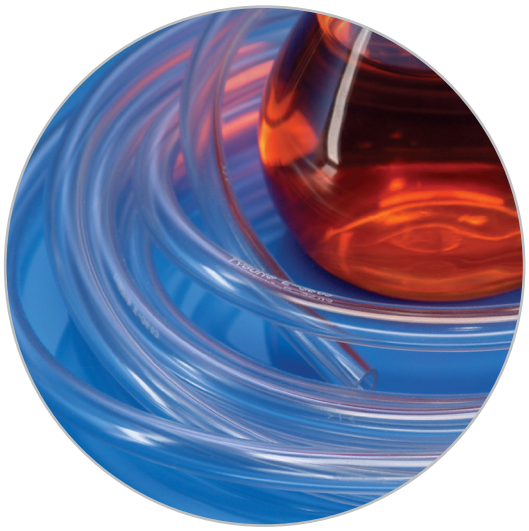
Sterilization Methods

- Autoclavable — Steam 30 minutes at 15 psi at 250 °F (121°C)
- Radiation:
  - Gamma up to 2.5 MRad
- Ethylene oxide gas



Product Characteristics

Opacity	Clear
FDA Food Contact Compliance	Yes
NSF 51 Standard	Yes
USP <88> Class VI, and/or USP <87>, and/or ISO 10993-5	Passed

Typical Physical Properties

Property	ASTM Method	Value or Rating E-3603
Durometer Hardness (Shore A), 15 sec	D2240	56
Color	–	Clear
Tensile Strength, psi (MPa)	D412	1,750 (12.1)
Ultimate Elongation, %	D412	425
Tear Resistance, lb-f/inch (kN/m)	D1004	173 (31)
Specific Gravity	D792	1.21
Water Absorption, % 24 hrs. @ 73°F (23°C)	D570	0.21
Compression Set Constant Deflection, % @ 158°F (70°C) for 22 hrs.	D395 Method B	64
Brittle Temperature, °F (°C)	D746	-51 (-46)
Maximum Recommended Operating Temp., °F (°C)	–	165 (74)
Tensile Stress, @ 100% elongation psi (MPa)	–	582 (4.0)
Tensile Set, %	D412	95

Unless otherwise noted, all tests were conducted at room temperature (73°F/23°C). Values shown were determined on 0.075"/1.9 mm thick extruded strip or 0.075"/1.9 mm thick molded ASTM plaques or molded ASTM durometer buttons.

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IMPORTANT: It is the user's responsibility to ensure the suitability and safety of Saint-Gobain Performance Plastics products for all intended uses and that the materials to be used comply with all applicable medical regulatory requirements. Saint-Gobain Performance Plastics assumes no responsibility for any product failures that occur due to misuse of the materials it provides arising out of the design, fabrication or application of the products into which the materials are incorporated.

WARRANTY: For a period of 12 months from the date of first sale, Saint-Gobain Performance Plastics warrants this product to be free of 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.

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TYGON S3™ E-3603

The only choice for phthalate-free flexible tubing

Non-DEHP Tubing for Laboratory, Food & Beverage and Vacuum Applications

Saint-Gobain is proud to be among the first companies to offer sustainable, flexible tubing products. The bio-based Tygon S3 line combines high performance with an eco-friendly tubing design. Crystal clear and flexible, long-lasting and crack-resistant, Tygon S3 E-3603 non-DEHP tubing delivers the same superior performance you have come to expect, and in a formulation that contains a bio-based plasticizer.

Tygon S3™ E-3603 is manufactured under tightly controlled standards to ensure consistency and reduce variability in your application. It is non-toxic, non-contaminating, and the glassy-smooth inner bore helps prevent buildup and facilitates cleaning. Coils are marked at 1-foot (30.4 cm) intervals for easy measuring.

Engineered to Last

Tygon S3™ E-3603 Tubing is formulated to resist flex-fatigue and abrasion. As a tubing for instrumentation connection, vent, drain and other general laboratory applications, Tygon S3™ E-3603 Tubing offers superior life, which minimizes the labor and expense of replacement. It can be sterilized through conventional autoclave methods (steam 30 minutes at 15 psi, 121˚C) and ethylene oxide.

Available in Vacuum Tubing Sizes

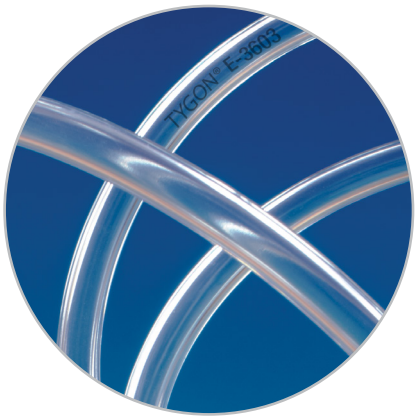
Tygon S3™ E-3603 Vacuum Tubing has extra-heavy walls that will withstand a full vacuum at room temperature (29.9″ [759 mm] of mercury at 73˚F [23˚C] and up to 27″ [686 mm] of mercury at 140˚F [60˚C]). Like standard Tygon® Laboratory Tubing, Tygon S3 E-3603 Vacuum Tubing has good tensile and tear strength.

Regulatory Standards

Tygon S3™ E-3603 complies with:

- US FDA food contact criteria *
- (EU) 10/2011 and (EC) 1935/2004 *
- Japanese Food Sanitation Law 370/1959
- NSF®-51, Food Equipment Materials
- USP <88> Class VI, and/or USP <87>, and/or ISO 10993-5
- REACH (EC) 1907/2006

* For complete compliance information and appropriate use instructions, please refer to the detailed document of compliance. The complete compliance information and use instructions can be obtained by contacting Saint-Gobain



Tygon S3™ E-3603 Features/Benefits

- Bio-based formulation reduces environmental impact
- Lot-to-lot consistency for reproducible results
- Non-toxic and non-contaminating
- Smooth inner wall
- Slips easily over fittings and grips securely for simple lab set-ups
- No BPA or phthalates intentionally added
- Sizes available which hold full vacuum at room temperature

Typical Applications

- General laboratory connections
- Food & beverage*
- Biopharmaceutical analysis
- Analytical Instrumentation
- Vacuum pumps
- Ideal for condensers, incubators, desiccators, gas lines and drain lines



Tygon S3™ E-3603 Non-DEHP Tubing–Available Sizes

Saint-Gobain Part Number	I.D.		O.D.		Wall Thickness		Length		Minimum Bend Radius		Maximum Working Pressure		Vacuum Rating of Mercury	
	in.	mm	in.	mm	in.	mm	ft.	m	in.	mm	psi at 73°F*	bar at 23°C*	inches at 73°F	mm at 23°C
ACF00001	1/32	0.8	3/32	2.4	1/32	0.8	50	15	1/8	3.2	69	4.8	29.9	760
ACF00002	1/16	1.6	1/8	3.2	1/32	0.8	50	15	1/4	6.4	36	2.5	29.9	760
ACF02002	1/16	1.6	1/8	3.2	1/32	0.8	100	30.5	1/8	3.2	36	2.5	29.9	760
ACF04002	1/16	1.6	1/8	3.2	1/32	0.8	500	152	1/8	3.2	36	2.5	29.9	760
ACF00003	1/16	1.6	3/16	4.8	1/16	1.6	50	15	1/8	3.2	69	4.8	29.9	760
ACF00004	3/32	2.4	5/32	4.0	1/32	0.8	50	15	3/8	9.5	25	1.7	29.9	760
ACF02004	3/32	2.4	5/32	4.0	1/32	0.8	100	30.5	3/8	9.5	25	1.7	29.9	760
ACF00005	3/32	2.4	7/32	5.6	1/16	1.6	50	15	1/4	6.4	47	3.2	29.9	760
ACF00006	1/8	3.2	3/16	4.8	1/32	0.8	50	15	1/2	12.7	20	1.4	20	508
ACF04006	1/8	3.2	3/16	4.8	1/32	0.8	500	152	1/2	12.7	20	1.4	20	508
ACF00007	1/8	3.2	1/4	6.4	1/16	1.6	50	15	3/8	9.5	36	2.5	29.9	760
ACF02007	1/8	3.2	1/4	6.4	1/16	1.6	100	30.5	3/8	9.5	36	2.5	29.9	760
ACF04007	1/8	3.2	1/4	6.4	1/16	1.6	500	152	3/8	9.5	36	2.5	29.9	760
ACF00009	5/32	4.0	7/32	5.6	1/32	0.8	50	15	3/8	9.5	17	1.2	12	305
ACF00010	5/32	4.0	9/32	7.1	1/16	1.6	50	15	1/2	12.7	30	2.1	29.9	760
ACF02010	5/32	4.0	9/32	7.1	1/16	1.6	100	30.5	1/2	12.7	30	2.1	29.9	760
ACF00011	3/16	4.8	1/4	6.4	1/32	0.8	50	15	1	25.4	14	1.0	9	229
ACF00012	3/16	4.8	5/16	7.9	1/16	1.6	50	15	5/8	15.9	25	1.7	29.9	760
ACF02012	3/16	4.8	5/16	7.9	1/16	1.6	100	30.5	5/8	15.9	25	1.7	29.9	760
ACF04012	3/16	4.8	5/16	7.9	1/16	1.6	500	152	5/8	15.9	25	1.7	29.9	760
ACF00013	3/16	4.8	3/8	9.5	3/32	2.4	50	15	1/2	12.7	36	2.5	29.9	760
ACF00014	3/16	4.8	7/16	11.1	1/8	3.2	50	15	3/8	9.5	47	3.2	29.9	760
ACF00016	1/4	6.4	5/16	7.9	1/32	0.8	50	15	1-5/8	41.3	12	0.8	5	127
ACF00017	1/4	6.4	3/8	9.5	1/16	1.6	50	15	1	25.4	20	1.4	20	508
ACF02017	1/4	6.4	3/8	9.5	1/16	1.6	100	30.5	1	25.4	20	1.4	20	508
ACF04017	1/4	6.4	3/8	9.5	1/16	1.6	500	152	1	25.4	20	1.4	20	508
ACF00018	1/4	6.4	7/16	11.1	3/32	2.4	50	15	3/4	19.0	28	1.9	29.9	760
ACF00019	1/4	6.4	1/2	12.7	1/8	3.2	50	15	1/2	12.7	36	2.5	29.9	760
ACF02019	1/4	6.4	1/2	12.7	1/8	3.2	100	30.5	1/2	12.7	36	2.5	29.9	760
ACF00022	5/16	7.9	7/16	11.1	1/16	1.6	50	15	1-3/8	34.9	17	1.2	13	330
ACF00023	5/16	7.9	1/2	12.7	3/32	2.4	50	15	1	25.4	23	1.6	29.9	760
ACF00024	5/16	7.9	9/16	14.3	1/8	3.2	50	15	7/8	22.2	30	2.1	29.9	760
ACF00025	5/16	7.9	5/8	15.9	5/32	4.0	50	15	3/4	19.0	36	2.5	29.9	760
ACF00027	3/8	9.5	1/2	12.7	1/16	1.6	50	15	1-1/2	38.1	14	1.0	9	229
ACF00028	3/8	9.5	9/16	14.3	3/32	2.4	50	15	1-3/8	34.9	20	1.4	21	533
ACF00029	3/8	9.5	5/8	15.9	1/8	3.2	50	15	1-1/8	28.6	25	1.7	29.9	760
ACF00032	7/16	11.1	9/16	14.3	1/16	1.6	50	15	2-1/4	57.2	13	0.9	7	178
ACF00033	7/16	11.1	5/8	15.9	3/32	2.4	50	15	1-3/4	44.4	18	1.2	15	381
ACF00034	7/16	11.1	11/16	17.5	1/8	3.2	50	15	1-3/8	34.9	22	1.5	28	711
ACF00036	1/2	12.7	5/8	15.9	1/16	1.6	50	15	2-7/8	73.0	12	0.8	5	127
ACF00037	1/2	12.7	11/16	17.5	3/32	2.4	50	15	2-1/4	57.2	15	1.0	12	305
ACF02037	1/2	12.7	11/16	17.5	3/32	2.4	100	30.5	2-1/4	57.2	15	1.0	12	305
ACF00038	1/2	12.7	3/4	19.0	1/8	3.2	50	15	1-1/2	38.1	20	1.4	21	533
ACF00039	1/2	12.7	13/16	20.6	5/32	4.0	50	15	1-1/2	38.1	24	1.7	29.9	760
ACF00041	9/16	14.3	3/4	19.0	3/32	2.4	50	15	2-1/2	63.5	14	1.0	9	229
ACF00042	9/16	14.3	13/16	20.6	1/8	3.2	50	15	2	50.8	18	1.2	17	432
ACF00045	5/8	15.9	13/16	20.6	3/32	2.4	50	15	3	76.2	13	0.9	7	178
ACF00046	5/8	15.9	7/8	22.2	1/8	3.2	50	15	2-3/8	60.3	17	1.2	13	330
ACF00047	5/8	15.9	15/16	23.8	5/32	4.0	50	15	2	50.8	20	1.4	21	533
ACF00050	11/16	17.5	7/8	22.2	3/32	2.4	50	15	3-1/2	88.9	12	0.8	6	152
ACF00053	3/4	19.0	1	25.4	1/8	3.2	50	15	3-1/4	82.6	14	1.0	9	229
ACF00054	3/4	19.0	1-1/16	27.0	5/32	4.0	50	15	2-3/4	69.8	17	1.2	15	381
ACF00055	3/4	19.0	1-1/8	28.6	3/16	4.8	50	15	2-3/8	60.3	20	1.4	21	533
ACF00057	3/4	19.0	1-1/4	31.8	1/4	6.4	50	15	2	50.8	25	1.7	29.9	760
ACF00059	7/8	22.2	1-1/8	28.6	1/8	3.2	50	15	4-1/8	104.8	13	0.9	7	178
ACF00060	7/8	22.2	1-3/16	30.2	5/32	4.0	50	15	3-1/2	88.9	15	1.0	11	279
ACF00062	1	25.4	1-1/4	31.8	1/8	3.2	50	15	4-3/4	120.6	12	0.8	5	127
ACF00064	1	25.4	1-3/8	34.9	3/16	4.8	50	15	4	101.6	16	1.1	12	305
ACF00065	1	25.4	1-1/2	38.1	1/4	6.4	50	15	3	76.2	20	1.4	21	533
ACF00068	1-1/8	28.6	1-1/2	38.1	3/16	4.8	50	15	4-1/2	114.3	14	1.0	9	229
ACF00069	1-1/4	31.8	1-1/2	38.1	1/8	3.2	50	15	7-7/8	200	10	0.7	3	76
ACF00070	1-1/4	31.8	1-5/8	41.3	3/16	4.8	50	15	5-1/2	139.7	13	0.9	7	178
ACF00073	1-1/2	38.1	1-7/8	47.6	3/16	4.8	50	15	7-1/4	184.2	12	0.8	5	127
ACF00074	1-1/2	38.1	2	50.8	1/4	6.4	50	15	5-7/8	149.2	14	1.0	9	229
ACF00076	1-3/4	44.4	2-1/4	57.2	1/4	6.4	50	15	7-1/2	190.5	13	0.9	7	178
ACF00078	2	50.8	2-1/2	63.5	1/4	6.4	50	15	9-3/8	238.1	12	0.8	5	127
ACF05078	2	50.8	2-1/2	63.5	1/4	6.4	20	6	9-3/8	238.1	12	0.8	5	127

Tygon S3™ E-3603 Non-DEHP Tubing–Available Sizes

Saint-Gobain Part Number	I.D.		O.D.		Wall Thickness		Length		Minimum Bend Radius		Maximum Working Pressure		Vacuum Rating of Mercury at	
	in	mm	in	mm	in	mm	ft.	m	in	mm	psi at 73°F	bar at 23°C*	inches at 73°F	mm at 23°C
Vacuum Sizes														
ACF00015	3/16	4.8	9/16	14.3	3/16	4.8	50	15	1/4	6.4	69	4.8	29.9	760
ACF00020	1/4	6.4	5/8	15.9	3/16	4.8	50	15	1/2	12.7	53	3.7	29.9	760
ACF00030	3/8	9.5	7/8	22.2	1/4	6.4	50	15	5/8	15.9	47	3.2	29.9	760
ACF00040	1/2	12.7	1-1/8	28.6	5/16	7.9	50	15	7/8	22.2	45	3.1	29.9	760
ACF00049	5/8	15.9	1-3/8	34.9	3/8	9.5	50	15	1	25.4	43	3.0	29.9	760
ACF00058	3/4	19.0	1-1/2	38.1	3/8	9.5	50	15	1-1/2	38.1	36	2.5	29.9	760
ACF00066	1	25.4	2	50.8	1/2	12.7	50	15	1-7/8	47.6	36	2.5	29.9	760
ACF05066	1	25.4	2	50.8	1/2	12.7	20	6	1-7/8	47.6	36	2.5	29.9	760
Unipacs (10/10′ lengths per carton)														
ACFUN007	1/8	3.2	1/4	6.4	1/16	1.6	10/10′	10/3	3/8	9.5	36	2.5	29.9	760
ACFUN012	3/16	4.8	5/16	7.9	1/16	1.6	10/10′	10/3	5/8	15.9	25	1.7	29.9	760
ACFUN017	1/4	6.4	3/8	9.5	1/16	1.6	10/10′	10/3	1	25.4	20	1.4	20	508
ACFUN019	1/4	6.4	1/2	12.7	1/8	3.2	10/10′	10/3	1/2	12.7	36	2.5	29.9	760
ACFUN027	3/8	9.5	1/2	12.7	1/16	1.6	10/10′	10/3	1-1/2	38.1	15	1.0	9	229
ACFUN036	1/2	12.7	5/8	15.9	1/16	1.6	10/10′	10/3	2-7/8	73.0	12	0.8	5	127
ACFUN053	3/4	19.0	1	25.4	1/8	3.2	10/10′	10/3	3-1/4	82.6	15	1.0	9	229
ACFUN062	1	25.4	1-1/4	31.8	1/8	3.2	10/10′	10/3	4-3/4	120.6	12	0.8	5	127
Vacuum Unipacs (10/10′ or 4/10′ lengths per carton as shown below)														
ACFUN015	3/16	4.8	9/16	14.3	3/16	4.8	10/10′	10/3	1/4	6.4	70	4.8	29.9	760
ACFUN020	1/4	6.4	5/8	15.9	3/16	4.8	10/10′	10/3	1/2	12.7	54	3.7	29.9	760
ACFUN030	3/8	9.5	7/8	22.2	1/4	6.4	10/10′	10/3	5/8	15.9	46	3.2	29.9	760
ACFUN040	1/2	12.7	1-1/8	28.6	5/16	7.9	10/10′	10/3	7/8	22.2	45	3.1	29.9	760
ACFUN049	5/8	15.9	1-3/8	34.9	3/8	9.5	10/10′	10/3	1	25.4	44	3.0	29.9	760

Metric Sizes

Saint-Gobain Part Number	I.D. mm	O.D. mm	Wall Thickness mm	Length m	Minimum Bend Radius mm	Maximum Working Pressure Bars at 23ºC	Vacuum Rating mm of Mercury at 23ºC
ACF1S1502	2	4	1	15	7	2.5	760
ACF1S1517	3	5	1	15	13	1.7	760
ACF1S1518	4	6	1	15	16	1.4	533
ACF1S1503	5	8	1.5	15	19	1.6	760
ACF1S1504	6	9	1.5	15	22	1.4	559
ACF1S1506	8	12	2	15	29	1.4	533

Unless otherwise noted, all tests were conducted at room temperature (73°F/23°C). Values shown were determined on 0.075″/1.9 mm thick extruded strip or 0.075″/1.9 mm thick molded ASTM plaques or molded ASTM durometer buttons.

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

Custom sizes available upon request.