

# FLURAN<sup>®</sup> Severe Environment Tubing



Resistant to corrosive chemicals and solvents, Fluran<sup>®</sup> Severe Environment Tubing is designed to handle the most aggressive solutions at temperatures as high as 400°F.

## Exceptional Properties of Fluran<sup>®</sup>

Made of a proprietary fluoroelastomer, Fluran<sup>®</sup> Severe Environment Tubing has both the physical and chemical characteristics that make it ideal for severe environments, such as dry cleaning fluid lines and solvent recovery systems, where other flexible tubings fail. Fluran<sup>®</sup> Severe Environment Tubing can be used in continuous service with temperatures as high as 400°F (204°C). Fluran<sup>®</sup> Severe Environment Tubing's opaque black color helps protect light-sensitive materials being transferred and will not prematurely crack and age when exposed to ozone, sun and weather. A food grade formulation is available upon request.

## Reduced Outgassing

Through a high temperature, time controlled, post-cure process, virtually all processing residuals are driven from Fluran<sup>®</sup> Severe Environment Tubing. This allows for use in applications where minimal outgassing is required. This condition can be desirable in numerous applications such as found in the aerospace industry, where preventing contamination of highly sensitive instrumentation may be critical.

## Excellent Chemical Resistance

Fluran<sup>®</sup> Severe Environment Tubing provides excellent resistance to corrosive chemicals, oils, fuels, solvents and most mineral acids. Fluran<sup>®</sup> tubing is highly flexible and resilient, making it the ideal choice in peristaltic pumping of extremely corrosive materials. Refer to the "Effect of Chemical and Temperature Environments on Physical Properties" chart on the back of this page for a listing of common chemicals and their relative effect on the physical properties of Fluran<sup>®</sup> Severe Environment Tubing.

## FORMULATION F-5500-A

*Withstands the  
harshest of  
chemicals, even  
under high  
temperatures*

### Features/Benefits

- Provides continuous service at temperatures up to 400°F (204°C)
- Excellent resistance to corrosive chemicals, oils, fuels and solvents
- Resists ozone, sunlight and weathering
- Opaque black color helps protect light-sensitive fluids

### Typical Applications

- Solvent recovery systems
- Process monitoring equipment
- Peristaltic pumping of concentrated acids
- Fuel lubrication lines in high temperature equipment
- O-Rings, seals and gasketing
- Caustic hot air exhaust and sampling
- Dry cleaning fluid lines
- Chemical processing

## FLURAN® F-5500-A Inventoried Sizes

Saint-Gobain Part Number	I.D. (inches)	O.D. (inches)	Wall Thickness (inches)	Length (feet)	Minimum Bend Radius (inches)	Max. Working Pressure		Vacuum Rating, In. of Mercury	
						at 73°F (psi)*	at 275°F (psi)*	at 73°F	at 275°F
AGN00002	1/16	1/8	1/32	50	1/4	18	12	29.9	29.9
AGN00007	1/8	1/4	1/16	50	1/2	19	13	29.9	29.9
AGN00012	3/16	5/16	1/16	50	3/4	15	9	29.9	29.9
AGN00017	1/4	3/8	1/16	50	1	13	8	25.0	20.0
AGN00022	5/16	7/16	1/16	50	1-1/4	11	6	15.0	10.0
AGN00027	3/8	1/2	1/16	50	2	10	5	10.0	5.0

\*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.

## FLURAN® F-5500-A Typical Physical Properties

Property	ASTM Method	Value or Rating
Durometer Hardness Shore A, 15 Sec	D2240-02	60
Color	-	Black
Tensile Strength psi (MPa)	D412-98	1400 (9.3)
Ultimate Elongation, %	D412-98	300
Tear Resistance lb-f/inch (kN/m)	D1004-94	100 (17.5)
Specific Gravity	D792-00	1.90
Water Absorption, % 24 hrs. @ 23°C	D570-98	0.23
Compression Set Constant Deflection, % @ 158°F (70°C) for 22 hrs.	D395-02 Method B	37
Brittleness By Impact Temp., °F (°C)	D746-98	-60 (-51)
Maximum Recommended Operating Temp., °F (°C)	-	400 (204)
Dielectric Strength v/mil (kV/mm)	D149-97	500 (19.7)
Tensile Modulus, @ 100% Elongation, psi (MPa)	D412-98	350 (2.4)
Tensile Set, %	D412-98	13

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.

**FLURAN® TUBING IS NOT INTENDED FOR USE AS AN IMPLANT MATERIAL**

FLURAN® is a Saint-Gobain Performance Plastics registered trademark.

## Saint-Gobain Performance Plastics



**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.

Saint-Gobain Performance Plastics Corporation assumes no obligations or liability for any advice furnished by it, or for results obtained with respect to those products. All such advice is given and accepted at the buyer's risk.

## Effect of Chemical & Temperature Environments on Physical Properties

Fluran® Tubing at Room Temperature\* and Percent of Original Properties Retained After 28-Day Exposure

Environment	Percentage Retained					% Weight Change	% Volume Change
	Tensile	Ultimate % Elongation	100% Modulus psi	200% Modulus psi	300% Modulus psi		
<b>Original Properties</b>	<b>1,350</b>	<b>300</b>	<b>350</b>	<b>800</b>	<b>1,300</b>	-	-
ASTM Oil #3 at 300°F	90	92	103	99	98	+2	+5
Ethyl Alcohol-99%	67	103	64	61	65	+2	+5
Hydrochloric Acid-37%	86	109	81	75	78	+3	+5
Hydrofluoric Acid-48%	85	109	85	78	79	+1	+1
Nitric Acid-10% (156°F)	76	99	74	65	72	+50	+94
Nitric Acid-60%	86	106	79	76	81	+3	+4
Perchloroethylene	71	108	68	64	65	+4	+6
Sodium Hydroxide-40%	94	96	94	91	98	-1	-1
Sulfuric Acid-50%	94	94	96	96	98	-1	-1
Sulfuric Acid-98% (158°F)	84	94	93	87	90	+14	+20
Sulfuric Acid-98%	93	97	95	91	94	+6	+9
Toluene	56	91	64	62	62	+6	+15
Water at 158°F	87	105	89	83	82	+1	+1
Methylene Chloride	41	67	61	59	-	+13	+20
Air at 400°F	111	95	107	112	117	-3	-4

\*Room Temperature is 73°F, 50% Relative humidity, ASTM D471.