

# PFA GC403

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EVERFLON<sup>Ultra</sup>  
Advanced Fluoropolymers

## DESCRIPTION

Everflon™ PFA GC403 is a special purpose fluoroplastic resin available in pellet form. This resin is a chemically modified form of Everflon™ PFA 403 that combines many of the benefits of the parent resin (highest resistance to environmental stress-cracking with a typical MIT folding endurance of 500,000) with several additional benefits including enhanced purity, improved thermal stability while processing, and chemical inertness; for example, to ozonated fluids.

Everflon™ PFA GC403 is a relatively low melt flow rate (typical MFR of 3), premium resin with the lowest level of extractables designed to meet ultra-high purity requirements. An enhanced resistance to environmental stress-cracking makes Everflon™ PFA GC403 a preferred resin when extended service is required in hostile environments involving chemical, thermal, and mechanical stress.

Additionally, the enhanced purity of Everflon™ PFA GC403 makes it suitable for applications that require improved color, lower extractable fluorides, and freedom from other foreign materials. This product contains no additives and is designed for hostile chemical environments where purity in the parts-per-billion

range is needed. Examples are in semiconductor manufacture, fluid handling systems for industry or life sciences, and instrumentation for precise measurements of fluid systems. Compared to other thermoplastics, the high melt strength and thermal stability of Everflon™ PFA GC403 can be used to improve processing rates, combining the processing ease of conventional thermoplastics with many properties similar to those of polytetrafluoroethylene.

Properly processed products made from neat Everflon™ PFA GC403 resin provide the superior properties characteristic of fluoroplastic resins: chemical inertness, exceptional dielectric properties, heat resistance, toughness and flexibility, low coefficient of friction, nonstick characteristics, negligible moisture absorption, low flammability, performance at temperature extremes, and excellent weather resistance.

In a flame situation, products of Everflon™ PFA GC403 resist ignition and do not promote flame spread. When ignited by flame from other sources, their contribution of heat is very small and added at a slow rate with very little smoke.



# DATA LIST

## General Property Data for Everflon™ PFA 403 Fluoroplastic Resin

Property	Test Method		Unit	Typical Value
<b>GENERAL</b>				
MFI	—	ASTM D3307	g/10min/5kg	2~4
Melt Point	—	ASTM D4591	°C (°F)	305(581)
Specific Gravity	—	ASTM D792	—	2.15
Critical Shear Rate, 372 °C (702 °F)	—	—	1/s	12
<b>MECHANICAL</b>				
Tensile Strength	ISO 12086	ASTM D3307	MPa (psi)	
23 °C (73 °F)				28 (4,000)
250 °C (482 °F)				14 (2,000)
Ultimate Elongation	ISO 12086	ASTM D3307	%	
23 °C (73 °F)				330
250 °C (482 °F)				500
Flexural Modulus	ISO 178	ASTM D790	MPa (psi)	
23 °C (73 °F)				625 (90,000)
250 °C (482 °F)				69 (10,000)
MIT Folding Endurance (0.20 mm, 8 mil film)	—	ASTM D2176	Cycles	500,000
Hardness Durometer	ISO 868	ASTM D2240	—	D55
<b>ELECTRICAL</b>				
Dielectric Strength, Short Time, 0.25 mm (0.010 in)	IEC 243	ASTM D149	kV/mm (V/mil)	80 (2,000)
Dielectric Constant, 1 MHz (10 <sup>6</sup> Hz)	IEC 250	ASTM D150	—	2.03
Dissipation Factor, 1 MHz (10 <sup>6</sup> Hz)	IEC 250	ASTM D150	—	<0.0002
Volume Resistivity	ISO 1325	ASTM D257	ohm·cm	10 <sup>18</sup>
<b>OTHER</b>				
Water Absorption, 24 hr	—	ASTM D570	%	<0.03
Weather and Chemical Resistance	—	—	—	Outstanding
Limiting Oxygen Index	ISO 4589	ASTM D2863	%	>95
Continuous Service Temperature	—	—	°C (°F)	260 (500)
Flammability Classification	—	UL 94	—	V-0

## TYPICAL APPLICATIONS

Applications for Everflon™ PFA GC403 include tubing, chemical linings for pipes, valves, and fittings used in the chemical processing industries, unsupported pipe linings for the production of ultra-pure chemicals, semiconductor components, and fluid handling components for highperformance chemical delivery systems where purity in the parts-perbillion range is needed.

Everflon™ PFA GC403 is preferred in applications where extended service is required in hostile environments involving chemical, thermal, and mechanical stress.

## PROCESSING GUIDE

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Everflon™ PFA GC403 can be processed by conventional melt extrusion, and by injection, compression, and transfer molding processes. High melt strength and heat stability permit the use of relatively large die openings and high temperature draw-down techniques that increase production rates. Reciprocating screw injection molding machines are preferred.

Corrosion-resistant metals should be used in contact with molten fluoroplastic resin. Extruder barrel should be long, relative to diameter, to provide residence time for heating the resin to approximately 390 °C (730 °F)

## HANDLING & PACKAGE

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The properties of Everflon™ PFA resin are not affected by storage time. Ambient storage conditions should be designed to avoid airborne contamination and water condensation on the resin when it is removed from containers.

Everflon™ PFA is supplied as pellets and is available in 25-kg multilayer bags with an integral polyethylene liner.

## PRECAUTION

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Equipment used to process at melt temperatures should be provided with local exhaust ventilation (LEV) to completely remove all fumes and vapors from the processing area. In addition, care should be exercised to avoid the contamination of cigarettes and other forms of smoking tobacco when using fluoroplastic resins. Before processing any fluoroplastics, read the Material Safety Data Sheet.

## FOOD CONTACT COMPLIANCE

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Properly processed products made from Everflon™ PFA GC403 resin can qualify for use in contact with food in compliance with FDA 21 CFR177.1550 and European Regulation (EU) No. 10/2011.

# ABOUT C&F AND EVERFLON FLUOROPOLYMERS

Everflon™ is brand of C&F Group dealing in fluoropolymers materials including PTFE.FEP.PFA.ETFE and PVDF. On the basis of Everflon, C&F also developing the fluoropolymer applications including tubing,coating and films.

More information could visit [www.everflonultra.com](http://www.everflonultra.com) or Everflon™ Fluoropolymers Introduction and C&F Chemicals Book



*For more information, visit [www.everflon.com](http://www.everflon.com)  
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