



EVERFLON™

PFA 403

Extreme Endurance. Redefined.

The pinnacle of flex life and stress-crack resistance in advanced fluoropolymer engineering.

Ultra-High-Flex, Low-Flow Perfluoroalkoxy (PFA) Molding & Extrusion Resin | Direct Benchmark to Industry-Standard High-End PFA Resins.

Overview & Core Philosophy

Born for the Hostile. Built to Outlast.

Where maximum molecular integrity meets ultimate environmental resistance.

Everflon™ PFA 403 is a premium, low melt-flow rate fluoropolymer resin in pellet form, specifically engineered for the most demanding applications under simultaneous chemical, thermal, and mechanical stress. Compared to standard fluoroplastics, its defining hallmark is an unprecedented flexural fatigue resistance—boasting a typical MIT folding endurance of 500,000 cycles, which is 10 times that of medium-flow resins.

With exceptional melt strength, remarkable creep resistance at elevated temperatures, and superior environmental stress-cracking resistance (ESCR), Everflon™ PFA 403 ensures critical equipment remains leak-free and robust where other fluoroplastics degrade or fail prematurely.



Key Feature Pillars | Engineered for the Edge. Tested Beyond Limits.

Four breakthrough metrics that set a new benchmark for fluoropolymer reliability.

Unrivaled Flex Fatigue Life | Half a Million Cycles. Zero Compromise.

Industry-leading 500,000 MIT folding cycles for dynamic, high-flex service.

- Through tight molecular weight control and higher molecular entanglement, Everflon™ PFA 403 provides up to an order-of-magnitude increase in flex life compared to standard PFA resins. It is the benchmark material for dynamic diaphragms, continuous-motion expansion joints, and high-pressure chemical fluidic lines.

High Melt Strength & Integrity | Dense. Stable. Unyielding.

Controlled low-flow characteristics (2g/10min) tailored for thick-walled, defect-free parts.

- The low melt flow rate gives Everflon™ PFA 403 exceptional resistance to sagging and draw-down instability during melt processing. This makes it exceptionally suited for extrusion of thick-walled heavy-duty pipe liners, blow-molded bottles, and high-pressure fluid vessels where wall-thickness uniformity is paramount.

High-Temperature Creep Resistance | Strength That Withstands the Heat.

Retains 14 MPa tensile strength and 500% elongation at 250°C

- Detail: Engineered for continuous operation at 260°C, Everflon™ PFA 403 delivers superior retention of mechanical properties at elevated temperatures. Combined with universal chemical inertness and UL 94 V-0 flame resistance, it resists embrittlement and stress cracking against boiling acids and aggressive solvents.

Exceptional Dielectric & Non-Stick Purity | Clean by Nature. Clear by Design.

Ultra-low dielectric loss coupled with near-zero moisture absorption.

- Exhibiting a virtually frequency-independent dielectric constant of ~2.03, volume resistivity exceeding $10^{18}\Omega\cdot\text{cm}$, and water absorption below 0.03%, it guarantees pure signal transmission for critical sensors and prevents cross-contamination in ultra-clean semiconductor and pharmaceutical lines.

Typical Applications | Engineered for High-Pressure, High-Stress Realities.

Where chemical aggressiveness meets heavy mechanical demand.

Heavy-Duty Chemical Process Linings: Extruded seamless liners for steel pipes, columns, valves, fittings, and pumps handling boiling acids and halogens at high pressure.

High-Flex Films & Dynamic Diaphragms: Ultra-durable dynamic membranes for diaphragm valves, pulsation dampers, and dynamic chemical metering systems.

Extrusion Blow-Molded Containment: Blow-molded bottles, containers, and chemical transfer tanks requiring high environmental stress-crack resistance and high melt strength.

Processing & Handling Guidelines | Formed for Precision. Built for Scale.

Optimized parameters for low-flow, high-melt-strength fluoropolymer processing.

Machinery & Corrosion-Resistant Tooling: Everflon™ PFA 403 can be processed using conventional melt extrusion, transfer molding, compression molding, and reciprocating screw injection/blow molding machines. Due to the high processing temperatures and acidic nature of the molten polymer, all barrels, screws, dies, and tooling contact areas must be made from high-nickel, corrosion-resistant alloys (such as Hastelloy® or Inconel®).

Melt Temperature & Extrusion Barrel Profile: The recommended melt temperature ranges up to approximately 390°C. An extruder barrel with a high length-to-diameter (L/D) ratio is recommended to provide sufficient residence time for homogeneous melting of the low-MFR resin. High melt strength allows the use of relatively large die openings and high-temperature draw-down techniques to boost throughput.

Industrial Safety & Storage: Hot processing zones must be equipped with local exhaust ventilation (LEV) to exhaust vapors and thermal decomposition fumes completely. Resin properties are unaffected by storage time under ambient, clean, and dry conditions that prevent moisture condensation and particulate contamination.

Technical Profile

The Architecture of Performance.

Standardized testing according to ASTM and ISO international protocols.

Parameter	Test Method	Unit	Typical Value
Melt flow rate	ASTM D3307 / ISO 12086	g/10 min	2~4 g/10 min
Melting point	ASTM D4591	°C	305 °C
Specific gravity	ASTM D792	—	2.15
Tensile strength at 23 °C	ASTM D3307 / ISO 12086	MPa	>28
Elongation at break at 23 °C	ASTM D3307 / ISO 12086	%	>330
Flexural modulus at 23 °C	ASTM D790 / ISO 178	MPa	550
MIT Folding Endurance (8 mil)	ASTM D2176	Cycles	500,000
Shore D hardness	ASTM D2240 / ISO 868	Shore D	D55
Continuous Service Temp.	Heat Aging Criteria	°C	260
Limiting Oxygen Index (LOI)	ASTM D2863 / ISO 4589	%	>95
Flammability Rating	UL 94	Rating	V-0
Dielectric Constant (1MHz)	ASTM D150 / IEC 250	—	2.03
Dissipation Factor(1MHz)	ASTM D150 / IEC 250	—	<0.0002
Dielectric Strength (0.25mm)	ASTM D149 / IEC 243	kV/mm	80
Volume Resistivity	ASTM D257 / ISO 1325	Ω·cm	10 ¹⁸
Water absorption	ASTM D570	%	<0.03



True reliability is not proven in calm conditions. It is forged in the cauldron of boiling corrosives, high pressures, and relentless mechanical cycles.

It is the confidence that a diaphragm will bend half a million times without a fracture.

It is the assurance that a thick-walled pipe liner will carry aggressive acid for decades without yielding to stress cracking.

Everflon™ PFA 403 is more than high-performance polymer chemistry.

It is the ultimate shield for your critical infrastructure.

It is the unwavering strength engineered for when failure is simply not an option.

Master the extremes. Outlast with Everflon.

The Benchmark for the Extreme.

Where other materials surrender, Everflon continues to perform.

- Explore the future: www.everflon.com www.everflonultra.com
- Partner with us: info@everflon.com

Everflon Fluoropolymers co.,ltd

Fuqiao Industrial Park,C&F Ave,Chaidian,Wuhan, China. 43100

Tel:+86-185-7168-9228