

PFA: Perfluoroalkoxy

TEFLON™ PFA



PRODUCT DESCRIPTION

PFA is a high-performance, melt-processible fluoropolymer that exhibits similar characteristics to PTFE. It performs exceedingly well in extreme thermal and chemical environments.

Afton Plastics processes the following grades of PFA:

General Purpose Grades:
Teflon™ fluoroplastics grade 350

High Purity Grades:
Teflon™ fluoroplastics grades 440HP & 450HP

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PRODUCT BENEFITS

- Temperature range: -320°F to +500°F
- Exceptional dielectric insulation properties
- Negligible moisture absorption
- Low coefficient of friction
- Non-stick surface
- Very low gas permeation and outgassing
- May be welded with hot air welding equipment
- Chemically inert to all industrial chemicals and solvents
- High resistance to outdoor weathering
- Does not support combustion
- Low metals and ion extractables

TYPICAL APPLICATIONS

- Pump housings and pipe linings
- Fluid handling or chemical processing equipment
- Wet bench equipment
- Tanks
- Semiconductor wafer carriers
- Hostile environments involving chemical, thermal, and mechanical stress
- Food processing and packing equipment

MATERIAL CLASS

- ASTM D 3307 Type I (*440HP*) and ASTM D 3307 Type II (*350 and 450HP*)
- USDA and FDA compliant CFR-177.1550 (*Excluding PFA 350*)
- 3A Sanitary Standard 20-17
- USP Class VI

Data Sheet - TEFLON™ PFA

PROPERTY	GRADE			
	TEST METHOD	UNIT	350 & 450HP	440HP
MECHANICAL/PHYSICAL				
Melt Flow Rate	D3307	g/10 min	1 - 3	B:12-15, A:14-19, D:18-21
Specific Gravity	D792	g/cm ³	2.12 - 2.17	2.12 - 2.17
Water Absorption, 24 hr.	D570	%	< 0.03	< 0.03
Tensile Strength, 23°C	D3307	psi	3,625 - 4,000	3,600
Elongation, 23°C	D3307	%	300	300
Compressive Strength, 23°C	D695	psi	3,500	2,000
Impact Strength, 23°C, Notched Izod	D256	J/m	no break	--
Flexural Modulus, 23°C	D790	psi	90,000	85,000
Durometer Hardness, Shore D	D2240	D	55 - 60	55
Coefficient of Friction	D1894		0.21	--
Deformation Under Load, 23°C, 100 psi, 10 hr	D621	%	2	--
THERMAL				
Melting Point, Nominal	D3418	°C	302 - 310	302 - 310
Thermal Expansion (21°C to 100°C)	D696	mm/mm/°C	14 x 10 ⁻⁵	14 x 10 ⁻⁵
Thermal Expansion (100°C to 149°C)	D696	mm/mm/°C	18 x 10 ⁻⁵	17 x 10 ⁻⁵
Thermal Expansion (149°C to 208°C)	D696	mm/mm/°C	22 x 10 ⁻⁵	21 x 10 ⁻⁵
Oxygen Index	D2863	%	> 95	> 95
Maximum Service Temperature		°C	260	260
Thermal Conductivity	DuPont	W/m-K	0.19	--
Flammability	UL 94		V-0	--
ELECTRICAL				
Surface Resistivity	D257	ohm-sq	10 ¹⁷	--
Volume Resistivity	D257	ohm-sq	10 ¹⁸	10 ¹⁸
Dielectric Strength Short Time (10 mil film)	D149	Volts/mil	2,000	2,000
Dielectric Constant, 23°C, 60-10 ⁶ Hz	D150		2.03 - 2.1	2.03
Dissipation Factor, 23°C, 60-10 ⁶ Hz	D150		0.0001	0.0001
Arc Resistance	D495	seconds	> 180	--