Teflon® PFA 945HP Plus

Perfluoroalkoxy

DuPont Fluoropolymers

Message:

For inventory control purposes product name may be followed by an X.
Products labeled PFA 945HP Plus and PFA 945HP Plus X are equivalent and all information in this document is applicable to both.
Typical Application
With a typical MIT folding endurance of 800,000* cycles, DuPont™ Teflon ® PFA 945HP Plus is designed to withstand repeated flexing and aggressive chemical stress-cracking agents. Applications for Teflon ® PFA 945HP Plus include fluid handling components for high-performance chemical delivery systems, as well as tubing, unsupported pipe linings for the production of ultra-pure chemicals, and semiconductor components where purity in the parts-per-billion range is critical.
Description
DuPont™ Teflon ® PFA 945HP Plus is a premium fluoroplastic resin available in pellet form. Teflon ® PFA 945HP Plus possesses the same exceptional chemical resistance, high purity, and protection against ionic contamination as Teflon ® PFA HP grades with the added benefits of improved flex life (typical MIT flex of 800,000*) and chemical stress-crack resistance. Teflon ® PFA 945HP Plus meets the increasingly stringent requirements for ultra-reliable and non-contaminating parts, as well as unmatched HCl permeation resistance. The improved flex life and chemical resistance will reduce the cost of ownership of high purity fluid handling systems by reducing downtime caused by mechanical or chemical stresses. Additionally, parts molded with Teflon ® PFA 945HP Plus have improved clarity and a smooth finish, which can further help prevent buildup of microbial contamination in water handling systems. Table 1 shows the typical property data for Teflon ® PFA 945HP Plus.
This special purpose resin has a mid-range melt flow rate (typical MFR of 7), which permits relatively high extrusion speed and easier processing. The enhanced resistance to environmental stress-cracking makes Teflon ® PFA 945HP Plus a preferred resin when extended service is required in hostile environments involving chemical, thermal, and mechanical stress. Additionally, the enhanced purity of Teflon ® PFA 945HP Plus 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. Teflon ® PFA 945HP Plus combines the processing ease of conventional thermoplastics with the properties similar to those of polytetrafluoroethylene.
With Teflon ® PFA 945HP Plus, components can last longer under dynamic loads and resist damage caused by ozonated fluids and fluorosurfactants. Combined with excellent chemical, permeation, and stress-crack resistance, this durability leads to a reduced cost of ownership. The high purity and fully fluorinated olecule end groups of Teflon ® PFA HP Plus can reduce contamination to protect process yields.
Properly processed products made from neat Teflon ® PFA 945HP Plus resin provide the superior properties characteristic of fluoroplastic resins: chemical inertness, exceptional dielectric properties, heat resistance, toughness and flexibility, low coefficient of friction, non-stick characteristics, negligible moisture absorption, low flammability, performance at temperature extremes, and excellent weather resistance.
In a flame situation, products of Teflon ® PFA 945HP Plus 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.
Teflon ® PFA 945HP Plus meets the requirements of ASTM D3307, Type VI

General Information	
Features	High purity
	Low friction coefficient
	Low hygroscopicity
	Low smoke
	High ESCR (Stress Cracking Resistance)
	Good electrical performance
	Good flexibility
	Medium liquidity
	Good chemical resistance
	Good weather resistance
	Heat resistance, medium
	Thermal stability, good
	Good toughness

	Compliance of Food Exposure
	Medium transparency
Uses	Lining
	Pipe fittings
	Liquid treatment
Agency Ratings	FDA not rated
Forms	Particle
Processing Method	Extrusion
	Resin transfer molding
	Compression molding
	Injection molding

Physical	Nominal Value	Unit	Test Method
Specific Gravity	2.14	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (372°C/5.0 kg)	7.0	g/10 min	ASTM D3307, ISO 12086
Water Absorption (24 hr)	< 0.030	%	ASTM D570
Hardness	**Nominal Value**	**Unit**	**Test Method**
Durometer Hardness (Shore D)	55		ASTM D2240, ISO 868
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength			ASTM D3307, ISO 12086
23°C	28.0	MPa	ASTM D3307, ISO 12086
200°C	13.0	MPa	ASTM D3307, ISO 12086
Tensile Elongation			ASTM D3307, ISO 12086
Fracture, 23°C	290	%	ASTM D3307, ISO 12086
Fracture, 200°C	450	%	ASTM D3307, ISO 12086
Flexural Modulus			ASTM D790, ISO 178
23°C	600	MPa	ASTM D790, ISO 178
200°C	55.0	MPa	ASTM D790, ISO 178
Thermal	**Nominal Value**	**Unit**	**Test Method**
Melting Temperature	290	°C	ASTM D4591
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity	1.0E+18	ohms·cm	ASTM D257, ISO 1325
Dielectric Strength			
0.250 mm [1]	80	kV/mm	ASTM D149
0.250 mm	80	kV/mm	IEC 60243-1
Dielectric Constant (1 MHz)	2.03		ASTM D150, IEC 60250
Dissipation Factor (1 MHz)	< 2.0E-4		ASTM D150, IEC 60250
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating [2]	V-0		UL 94
Oxygen Index	> 95	%	ASTM D2863, ISO 4589-2

Additional Information	Nominal Value	Unit	Test Method
Critical Shear Rate (372°C)	21.0	sec^-1	
MIT Folding Endurance [3] (200.0 µm)	8.0E+5	Cycles	ASTM D2176
Weather and Chemical Resistance: Outstanding			

NOTE	
1.	Method A (short time)
2.	These results are based on laboratory tests under controlled conditions and do not reflect performance under actual fire conditions, current rating is a typical theoretical value.
3.	Depending on fabrication conditions

Recommended distributors for this material

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