Teflon® PFA 345

fluoropolymer resin

Extrusion and Molding Resin

Brand

Teflon® is a registered trademark of DuPont for its brand of fluoropolymer resins, which can only be licensed by DuPont for use in approved applications. Customers who wish to use the *Teflon*® trademark in connection with DuPont PFA products under license from DuPont should contact (800) 262-2745. Without a license, customers may not identify their product as containing *Teflon*®, but may refer to the resin as PFA 345.

Description

Teflon® PFA 345 is a medium-flow-rate resin available in clear 2.5-mm (0.1-in.) pellets. Compared with *Teflon*® PFA 340, it offers increased flex life and greater resistance to environmental stress cracking.

All grades of *Teflon*® PFA combine the processing ease of conventional thermoplastics with properties similar to those of *Teflon*® PTFE fluorocarbon resin. They have high melt strength, stability at high processing temperatures, and resistance to creep at high service temperatures.

Teflon® PFA retains its properties after service at 260°C (500°F) and has useful properties at temperatures as low as –196°C (–320°F). It is inert to nearly all industrial chemicals and solvents, and its dielectric properties are excellent. Products made with *Teflon*® PFA have moderate stiffness and high elongation.

In a flame situation, products of *Teflon*® PFA resist ignition and do not themselves 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.

Typical End Products

Applications for *Teflon*® PFA 345 include tubing; wire and cable insulation; injection-molded parts; and chemically resistant linings for bellows, valves, fittings, pipes, pumps, and other fluid- handling components.

Safety Precautions

WARNING!

VAPORS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED.

Before using *Teflon*® PFA 345, read the Material Safety Data Sheet and the detailed information in the "Guide to the Safe Handling of Fluoropolymer Resins," latest edition, published by the Fluoropolymers Division of The Society of the Plastics Industry—available from DuPont.

Open and use containers only in well-ventilated areas using local exhaust ventilation (LEV). Vapors and fumes liberated during hot processing, or from smoking tobacco or cigarettes contaminated with *Teflon*® PFA 345, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and typically pass within about 24 hours. Vapors and fumes liberated during hot processing should be exhausted completely from the work area; contamination of tobacco with polymers should be avoided.

Mixtures with some finely divided metals, such as magnesium or aluminum, can be flammable or explosive under some conditions.

Processing

Teflon® PFA 345 can be processed by conventional melt extrusion and by injection, compression, transfer, and blow-molding processes. High melt strength and heat stability permit the use of relatively large die openings and high-temperature draw-down techniques, which help increase extrusion rates. For injection molding, reciprocating screw machines are preferred. Equipment should be corrosion resistant and capable of operation from 316° to 425°C (600° to 800°F).

Packaging

Teflon® PFA 345 fluoropolymer resins are packaged in 55-lb (24.9-kg) sealed bags.

U.S. Freight Classification

For rail shipments, *Teflon*® PFA 345 is classified "Plastics, Synthetic, OTL NOIBN"; for truck shipments, "Plastic Materials, Granules"; and for express shipments, "Plastics, Synthetic."

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Table 1
Typical Property Data for *Teflon*® PFA Fluoropolymer Resin Grade 345

Property	ASTM Test Method	Value	Unit
Thermal			
Melt Flow Rate	D3307	4.1–8.9	g/10 min
Melting Point	D3307	305 (581)	°C (°F)
Continuous Service Temperature	—	260 (500)	°C (°F)
Flame Rating*	D635	5	s
		5	mm
	UL94	94V-0	—
Coefficient of Linear Thermal Expansion, 38–71°C (100–160°F)	D696	12.1–20.0	10^{-5} K^{-1}
Thermal Capacity, 20°C (68°F)	C177	1080	J/(kg·K)
Thermal Conductivity	C177	0.22	W/(m·K)
Mechanical			
Specific Gravity	D792	2.15	—
Tensile Strength	D638	29 (4,206)	MPa (psi)
Elongation	D638	300	%
Flexural Modulus	D700	690 (100,076)	MPa (psi)
Hardness, Shore	D2240	D60	—
Impact Strength, Notched Izod, 23°C (73°F)	D256	No break	—
MIT Folding Endurance	D2176	100,000	Cycle
Electrical			
Dielectric Constant, Short Term (60 Hz to 1 GHz)	D150	2.1	—
Dielectric Strength 0.025 mm film	D149	>80	kV/mm
Volume Resistivity	D257	$>10^{16}$	ohm·m
Dissipation Factor (tan delta) (60 to 10^9 Hz)	D150	0.0002–0.001	—
Environmental and Chemical Effects			
Weather and Chemical Resistance		Excellent	—
Water Absorption	D570	<0.01	%

* These results are based on laboratory tests under controlled conditions and do not reflect performance under actual fire conditions.

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