



TEFLON[®] FEP 100-J

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 FEP products under license from DuPont should contact your local DuPont office. Without a license, customers may not identify their product as containing Teflon[®], but may refer to the resin as FEP 100-J.

Description

Teflon[®] FEP 100-J is a general-purpose resin available in translucent, 2.5mm pellets. Compared with Teflon[®] FEP 140-J and FEP 160, it has higher flow rate and provides the best balance between end-product performance and ease of processing.

Teflon[®] FEP 100-J and other Teflon[®] FEP (fluorinated ethylene propylene) copolymer resins combine the processing ease of conventional thermoplastics with properties similar to those of polytetrafluoroethylene (PTFE). They have high melt strength and stability at recommended processing temperatures.

Teflon[®] FEP 100-J is preferred for products that are not exposed to severe environmental stress in service. It is often selected for products made by injection molding because it offers the higher available flow rate.

Properly processed products made from neat Teflon[®] FEP 100-J resin provide the superior properties typical of the fluoropolymer resins: retention of properties after service at 200°C, useful properties at -240°C, and chemical inertness to nearly all industrial chemicals and solvents. Dielectric properties are excellent. Molded products have moderate stiffness and high ultimate elongation.

In a flame, products made of Teflon[®] FEP 100-J resist ignition and do not themselves promote flame spread.

When ignited by flame from other sources, their contribution of heat is very small and is added at a slow rate with very little smoke.

Typical End Products

Teflon[®] FEP 100-J is ideal for many end products, including: extruded tubing, heat shrinkable sleeving, and other profiles for electrical insulation or fluid handling; film and products made from film; labware; and injection-and blow-molded articles requiring superior chemical inertness, electrical properties, and purity.

Processing

Teflon[®] FEP 100-J can be processed by conventional melt extrusion and by injection, compression, and transfer and blow molding processes. High melt strength permits 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 resin. Extruder barrels should be long relative to diameter, to provide residence time for heating the resin to approximately 400°C.

Safety Precautions

Warning!

VAPOURS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED

Before using Teflon[®], 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 resin dust, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and typically pass within 36 to 48 hr. 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.

Storage and Handling

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

Packaging

Teflon® FEP 100-J is supplied as pellets and is available in 25kg multilayer kraft bags with an integral polyethylene liner.

Table 1 Typical Property Data for Teflon® FEP 100-J

Property	ASTM Test Method	Unit	Nominal Value
Thermal			
Nominal Melting Point	D3418	°C	255 – 265
Upper Service Temperature	UL 746	°C	200
Flow Rate	D2116	g/10min.	7
Mechanical			
Tensile Strength, 23°C	D2116	MPa	27
Specific Gravity	D792	-	2.13 – 2.17
Ultimate Elongation, 23°C	D2116	%	380
Flexural Modulus, 23°C	D790	MPa	586
Impact Strength, 23°C	D256	J/m	No Break
Hardness Durometer	D2240	ShoreD	56
Compressive Strength	D695	MPa	21
Linear Coefficient of Expansion, 0 – 100°C	E831	mm/mm/°C	13.5×10 ⁻⁵
Electrical			
Dielectric Strength, 0.25mm	D149	kV/mm	80
Dielectric Constant, 1MHz, 23°C	D1531	-	2.02
Dissipation Factor, 1MHz, 23°C	D1531	-	0.0007
Volume Resistivity	D257	T ohm-cm	>10 ¹⁸
Arc Resistance	D495	sec	No Track
General			
Water Absorption, 24hr	D570	%	0.004
Weather and Chemical Resistance	-	-	Outstanding
Limiting Oxygen Index	D2863	%	95

Note: Typical properties are not suitable for specification purposes. Statements, or data, regarding behavior in a flame situation are not intended to reflect hazards presented by this or any other material when under actual fire conditions. Properly processed products (sintered at high temperatures common to the industry) made from Teflon® FEP resins can qualify for use in contact with food in compliance with FDA regulation 21 CFR 177.1550. Teflon® FEP 100-J is ASTM D2116, Type I.

For more information :

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102.