

DuPont™ Tefzel® 207

fluoropolymer resin

Description

DuPont™ *Tefzel*® 207 fluoropolymer is a special-purpose resin available in translucent, 2.5 mm (0.1 in) pellets. Compared with other grades of *Tefzel*®, it has a higher flow rate but still maintains a service temperature of 150°C (302°F).

Tefzel® 207 and the other *Tefzel*® fluoropolymers are melt processible, modified copolymers of ethylene and tetrafluoroethylene. They are high-performance resins that can be processed at relatively high rates compared with fluorocarbon resins. They are mechanically tough and offer an excellent balance of properties.

The relatively high flow rate (see **Table 1**) of *Tefzel*® 207 makes it uniquely suitable for high-speed processing, especially for extruded coatings and injection molding of slender, thin-walled or intricate shapes. Properly processed products made from neat *Tefzel*® 207 are inert to most solvents and chemicals, hydrolytically stable, and weather resistant. Recommended upper service temperature is 150°C (302°F); useful properties are retained at cryogenic ranges. The level and stability of dielectric properties are excellent and the flame rating is V-0 by the UL94 method. Mechanical properties include outstanding impact strength, cut-through, and abrasion resistance.

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.

Typical End Products

Tefzel® 207 is ideal for many end products, including electrical components such as sleeving, coil forms, sockets, connectors, and switches; lab ware such as tubing, valves, containers, and fasteners; battery or instrument components that require chemical inertness; and mechanical parts. The high melt flow rate of this product makes it ideal for injection molding and thin wall extrusion.

Processing

Tefzel® 207 can be processed by conventional, melt-extrusion techniques and by injection, compression, transfer, and blow molding processes. Compared with other grades of *Tefzel*®, it can be processed with greater ease and speed because of its high flow rate. Also, the melt viscosity of *Tefzel*® is reduced with increasing

shear rate, thus permitting the use of pressure extrusions through narrow dies without requiring appreciable drawdown. Reciprocating screw injection molding machines are preferred. Corrosion-resistant metals are recommended for contact with molten resin.

Extruder barrels should be long, relative to diameter, to provide residence time for heating the resin to approximately 340°C (640°F).

Safety Precautions

WARNING! Vapors can be liberated which may be hazardous if inhaled.

Before using *Tefzel*® 207, 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 *Tefzel*® 207, 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.

Storage and Handling

The properties of *Tefzel*® 207 resins 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.

Freight Classification

Tefzel® 207 is classified "Plastics, Materials, Granules."



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Table 1
Typical Property Data for DuPont™ Tefzel® Fluoropolymer Resin Grade 207

Property	Test Method	Unit	Value
Thermal			
Nominal Melting Point	D3159	°C (°F)	250–280 (491–536)
Flow Rate	D3159	g/10 min	30
Upper Service Temperature	UL746	°C (°F)	150 (300)
Mechanical			
Tensile Strength, 23°C (73°F)	D3159	MPa (psi)	40 (5,800)
Specific Gravity	D792	—	1.7
Ultimate Elongation, 23°C (73°F)	D3159	%	300
Flexural Modulus, 23°C (73°F)	D790	MPa (psi)	1000 (150,000)
Impact Strength, 23°C (73°F)	D256	J/m (ft-lb/in)	No Break
Electrical			
Dielectric Strength, 0.25 mm (0.010 in)	D149	V/0.001 in	1,700
Dielectric Constant, 1 MHz, 23°C (73°F)	D150	—	2.6–2.8
Dissipation Factor, 1 MHz, 23°C (73°F)	D150	—	0.009
Volume Resistivity	D257	ohm·m (ohm·cm)	1 x 10 ³ (1 x 10 ¹⁷)
General			
Water Absorption, 24 hr	D570	%	0.007
Weather and Chemical Resistance	—	—	Excellent
Limiting Oxygen Index	D2863	%	30–32

Note: Typical properties are not suitable for specification purposes.

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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.



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