

Tefzel™ ETFE HT-2184

Fluoropolymer Resin

Product Information

Description

Tefzel™ ETFE HT-2184 is a premium fluoropolymer resin in powder form. It provides the superior properties typical of fluoropolymer resins, such as excellent retention of properties after service, chemical inertness, and mechanical toughness.

Tefzel™ ETFE HT-2184 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 other fluorocarbon resins. They are mechanically tough and offer an excellent balance of properties.

Tefzel™ ETFE HT-2184 is preferred for applications where materials must be dispersed in an ETFE matrix. Materials can be well dispersed in the powder and then either compression molded or melt mixed for additional processing.

Properly processed products made from neat Tefzel™ ETFE HT-2184 are inert to most solvents and chemicals, hydrolytically stable, and weather-resistant. The recommended upper service temperature is 155 °C (311 °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. They are resistant to environmental stress cracking and have 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.

Processing

Tefzel™ ETFE HT-2184 can be processed by conventional melt-extrusion techniques and injection, compression, transfer, and blow-molding processes. Compared with other grades of Tefzel™, processing will be at a slower 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 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 340 °C (640 °F).

Typical End Products

Tefzel™ ETFE HT-2184 is ideal for many end products, including chemical service items, such as lined valves and fittings, pump housings and impellers, column packings, and other abrasion-resistant linings; high temperature electrical components and insulation; fasteners, corrugated tubing, and duct work; and film.

Safety Precautions

Before using Tefzel™ ETFE HT-2184, refer to the Safety Data Sheet and the latest edition of "The Guide to the Safe Handling of Fluoropolymer Resins," published by the Plastics Industry Association (www.plasticsindustry.org) or PlasticsEurope (www.plasticseurope.org).

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™ ETFE HT-2184, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and typically pass within about 24 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 Tefzel™ ETFE HT-2184 are not affected by storage time. Ambient storage conditions should be designed to avoid airborne contamination and formation of water on the resin when it is removed from containers.

Packaging

Tefzel™ fluoropolymer resins are packaged in 20.4-kg (45-lb) plastic bags.

Table 1. Typical Property Data for Tefzel™ ETFE HT-2184 Fluoropolymer Resin

Property	Test Method*	Unit	Value
Thermal			
Nominal Melting Point	D3418	°C (°F)	255–280 (491–536)
Flow Rate	D3159	g/10 min	6
Upper Service Temperature	UL746	°C (°F)	155 (311)
Mechanical			
Tensile Strength, 23 °C (73 °F)	D638	MPa (psi)	40 (6,000)
Specific Gravity	D792	—	1.7
Ultimate Elongation, 23 °C (73 °F)	D638	%	300
Electrical			
Dielectric Strength, 0.25 mm (0.010 in)	D150	kV/mm (V/0.001 in)	70 (1,800)
Dielectric Constant, 1 MHz, 23 °C (73 °F)	D1531	—	2.5–2.6
Dissipation Factor, 1 MHz, 23 °C (73 °F)	D1531	—	0.0072
Volume Resistivity	D257	ohm·m (ohm·cm)	1 x 10 ¹⁵ (1 x 10 ¹⁷)
General			
Water Absorption, 24 hr	D270	%	0.007
Weather and Chemical Resistance	—	—	Excellent
Bulk Density	Chemours	g/L	1,300
Flame Rating	UL94	—	V-0

*ASTM method, unless otherwise specified

Note: Typical properties are not suitable for specification purposes.

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