

Tefzel™ ETFE HT-2160

Fluoroplastic Resin

Product Information

Description

Tefzel™ ETFE HT-2160 fluoroplastic resin combines the chemical and high-temperature resistance of Tefzel™ with antistatic levels of electrical conductivity.

Tefzel™ ETFE HT-2160 and the other Tefzel™ fluoroplastics are melt processible, modified copolymers of ethylene and tetrafluoroethylene. They are high-performance resins that can be processed at relatively high rates compared to other fluoroplastic resins. They are mechanically tough and offer an excellent balance of properties.

Tefzel™ ETFE HT-2160 can perform successfully in applications where other thermoplastics are lacking in mechanical toughness, broad thermal capability, ability to meet difficult environmental conditions, or limited by fabricating problems.

Properly processed products made from virgin Tefzel™ ETFE HT-2160 are inert to most solvents and chemicals, hydrolytically stable, and weather-resistant. The recommended upper service temperature is 150 °C (302 °F); useful properties are retained at cryogenic ranges. Mechanical properties include outstanding impact strength, cut-through, and abrasion resistance.

Processing

Tefzel™ ETFE HT-2160 can be processed by conventional thermoplastic techniques, such as melt extrusion or injection, compression, transfer, and blow-molding processes. Drying at 100–130 °C (212–266 °F) in a dehumidified oven for 4 hr is suggested to remove any absorbed moisture. The melt viscosity of Tefzel™ is reduced with increasing shear rate; thus, permitting the use of pressure extrusion through narrow dies without requiring appreciable draw-down. Reciprocating

screw injection molding machines are preferred. Corrosion-resistant metals should be used in contact with molten resin from 300–345 °C (570–650 °F).

Processing conditions of these products are similar to conditions for Tefzel™ contained in the following bulletins by Chemours, "Injection Molding Guide for Teflon™ FEP, Teflon™ PFA, and Tefzel™" and "Extrusion Guide for Melt Processible Fluoropolymers."

Typical End Products

Tefzel™ ETFE HT-2160 resin can be used to manufacture extruded tubing, pipe, and other profiles for hose; linings of components used in the chemical processing industries; industrial film; and injection- and blow-molded articles requiring superior electrical, chemical, and thermal properties.

Safety Precautions

Before using Tefzel™ ETFE HT-2160, refer to the Safety Data Sheet and the latest edition of "The Guide to the Safe Handling of Fluoropolymer Resins," published by The Society of the Plastics Industry, Inc. (www.fluoropolymers.org) or by 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-2160, 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-2160 resins are not affected by room temperature storage. Ambient storage conditions should be designed to avoid airborne contamination and water condensation on the resin when it is removed from containers. Drying at 100–130 °C (212–266 °F) for 4 hr is suggested to remove any absorbed moisture.

Packaging

Tefzel™ ETFE HT-2160 resin is available in 2.5-mm (0.1-in) pellets. Tefzel™ ETFE HT-2160 is packaged in 34-kg (75-lb) drums with a polyethylene inner lining. Special packages containing 2.3-kg (5-lb) and 11.3-kg (25-lb) are also available.

Table 1. Typical Property Data for Tefzel™ ETFE HT-2160 Fluoroplastic Resin

Property	Test Method*	Unit	Tefzel™ HT-2160	Tefzel™ Fluoroplastic
Thermal				
Nominal Melting Point	D3159	°C (°F)	255–280 (491–536)	255–280 (491–536)
Flow Rate	D3159	g/10 min	2.3	2–11
Upper Service Temperature	UL746	°C (°F)	150 (302)	150 (302)
Mechanical				
Tensile Strength, 23 °C (73 °F)	D3159	psi	5,000	6,000–7,500
Specific Gravity	D792	—	1.7	1.7
Ultimate Elongation, 23 °C (73 °F)	D3159	%	200	300
Electrical				
Volume Resistivity	D257	ohm-cm	7**	>10 ¹⁸
General				
Weather and Chemical Resistance	—	—	Excellent	Excellent

*ASTM method, unless otherwise specified

**Volume resistivity as measured on compression molded plaques. Resistivity is very sensitive to processing technique. Injection molded plaques are typically higher. Typical properties are not suitable for specification purposes.

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