

# DuPont™ Tefzel® HT-2170

fluoropolymer resin

## Static Dissipating Semi-Conductive Resin

### Description

DuPont™ *Tefzel*® fluoropolymer HT-2170 resin combines the chemical and high-temperature resistance of *Tefzel*® with antistatic levels of electrical conductivity.

*Tefzel*® HT-2170 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 to other fluorocarbon resins. They are mechanically tough and offer an excellent balance of properties.

*Tefzel*® HT-2170 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 neat *Tefzel*® HT-2170 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. The main advantage of *Tefzel*® HT-2170 is that it has improved stress crack resistance and flexibility when compared to other static-dissipating *Tefzel*® ETFE resins. To gain stress crack resistance, some physical strength has been sacrificed. (See **Table 1** for details.)

### Typical End Products

*Tefzel*® HT-2170 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; injection and blow-molded articles requiring superior electrical, chemical, and thermal properties and stress crack resistance.

### Processing

*Tefzel*® HT-2170 can be processed by conventional thermoplastic techniques, such as by melt-extrusion or by 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. 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 this product are similar to conditions for *Tefzel*® contained in the DuPont bulletins, “Injection Molding Guide for Teflon® FEP, Teflon® PFA, and *Tefzel*®” and “Extrusion Guide for Melt Processible Fluoropolymers.”

### Safety Precautions

#### WARNING!

**VAPORS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED.**

Before using *Tefzel*® HT-2170, 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*® HT-2170, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and that typically pass within 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*® HT-2170 resin are not affected by storage time. 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® HT-2170 resin is available in 2.5-mm (0.1-in) pellets. HT-2170 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.

## Freight Classification

Tefzel®, when shipped by rail or express, is classified “Plastics, Synthetic, O.T.L., NOIBN.” Resin shipped by truck is classified “Plastics, Materials O.T.F.C.E. or S. Granules.”

**Table 1**  
**Typical Property Data for DuPont™ Tefzel® Fluoropolymer Resin Grade HT-2170**

Property	ASTM Standard	Unit	Tefzel® HT-2170	Tefzel® Fluoropolymers
<b>Thermal Properties</b>				
Nominal Melting Point	D3418	°C (°F)	220–250 (420–480)	255–280 (491–536)
Flow Rate	D3159	g/10 min	2.3	2–11
Upper Service Temperature	UL746	°C (°F)	150 (302)	150 (302)
<b>Mechanical Properties</b>				
Tensile Strength, 23°C (73°F)	D638	MPa (psi)	MPa(4,000)	MPa(6,000–7,500)
Specific Gravity	D792	—	1.7	1.7
Ultimate Elongation, 23°C (73°F)	D638	%	200	300
<b>Electrical Properties</b>				
Volume Resistivity	D257	ohm-cm	7*	>10 <sup>17</sup>
<b>General Properties</b>				
Weather and Chemical Resistance	—	—	Excellent	Excellent

\* Volume resistivity as measured on compression molded plaques. Resistivity is very sensitive to processing technique. Injection molded plaques are typically higher.

**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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