

# DuPont™ Tefzel® HT-2160

fluoropolymer resin

## Static Dissipating Semiconductive Resin

### Description

DuPont™ *Tefzel*® fluoropolymer HT-2160 resin combines the chemical and high-temperature resistance of *Tefzel*® with antistatic levels of electrical conductivity.

*Tefzel*® HT-2160 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 fluoropolymer resins. They are mechanically tough and offer an excellent balance of properties.

*Tefzel*® 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*® 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 and cut-through and abrasion resistance.

### Typical End Products

*Tefzel*® 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; injection and blow-molded articles requiring superior electrical, chemical, and thermal properties.

### Processing

*Tefzel*® HT-2160 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 four hours 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 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-2160, 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-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 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-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 four hours is suggested to remove any absorbed moisture.

### Packaging

*Tefzel*® HT-2160 resin is available in 2.5 mm (0.1 in.) pellets. *Tefzel*® HT-2160 is packaged in 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.”



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**Table 1**  
**Typical Property Data for DuPont™ Tefzel® Fluoropolymer Resin Grade HT-2160**

Property	Test Method	Unit	Tefzel® HT-2160	Tefzel® Fluoropolymers
<b>Thermal Properties</b>				
Nominal Melting Point	ASTM D3159	°C (°F)	255–280 (491–536)	255–280 (491–536)
Flow Rate	ASTM 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)	ASTM D3159	psi	5,000	6,000–7,500
Specific Gravity	ASTM D792	—	1.7	1.7
Ultimate Elongation, 23°C (73°F)	ASTM D3159	%	200	300
<b>Electrical Properties</b>				
Volume Resistivity	ASTM D257	ohm-cm	7*	>10 <sup>18</sup>
<b>General Properties</b>				
Weather and Chemical Resistance	—	—	Excellent	Excellent

**Notes:** Typical properties are not suitable for specification purposes.

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

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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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