

ETFE: Ethylene Tetrafluoroethylene



PRODUCT DESCRIPTION

ETFE is a modified copolymer of ethylene and tetrafluoroethylene that is often used in applications that demand mechanical toughness with thermal and chemical resistance.

Afton Plastics processes the following grades of ETFE:

Tefzel™ fluoroplastics grade 200

Tefzel™ fluoroplastics grade 280

Tefzel™ fluoroplastics grade HT-2181

Tefzel™ fluoroplastics grade HT-2183

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PRODUCT BENEFITS

- Temperature range: -150°F to +300°F
- Negligible moisture absorption
- High resistance to outdoor weathering
- Chemically inert to most industrial chemicals and solvents
- Exceptional dielectric insulation properties
- Rugged, good abrasive resistance and impact strength
- Compatible with hot air welding equipment
- Radiation and heat sterilization resistant

TYPICAL APPLICATIONS

- Pump housings and pipe linings
- Impellers and abrasive slurries
- Fluid handling and chemical processing
- Wet bench equipment
- Oxygen respirator components
- Military / defense equipment and components
- Food processing equipment
- Radomes

MATERIAL CLASS

- ASTM D 3159 Type 1, Grade 1
- USP Class VI (may be used in contact with food up to +250°F)
- 3A Sanitary Standard 20-17
- FDA compliant per 21 CFR-177.1550

Data Sheet - TEFZEL™ ETFE

PROPERTY
GRADE
MECHANICAL/PHYSICAL

Melt Flow Rate

ASTM METHOD	UNIT	HT 2183	280
D3159	g/10 min	6	4

Specific Gravity

D792	g/cm ³	1.7	1.7
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Water Absorption, 24 hr.

D570	%	0.007	0.007
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Tensile Strength, 23°C

D638	psi	6,100	6,700
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Ultimate Elongation, 23°C

D638	%	300	300
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Impact Strength, 23°C, Notched Izod

D256	J/m	no break	no break
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Flexural Modulus, 23°C

D790	psi	145,000	170,000
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Durometer Hardness, Shore D

D2240	D	67	72
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Coefficient of Friction

D1894		0.3 - 0.4	0.3 - 0.4
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THERMAL

Melting Point

D3418	°C	255 - 280	255 - 280
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Linear Coefficient of Expansion (0°C to 100°C)

D696	mm/mm/°C	13.3 x 10 ⁻⁵	13.3 x 10 ⁻⁵
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Limiting Oxygen Index

D2863	%	30 - 32	30 - 32
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Upper Service Temperature

	°C	155	150
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Flammability

UL 94		V-0	V-0
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ELECTRICAL

Surface Resistivity

D257	ohm-sq	> 10 ¹⁵	> 10 ¹⁵
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Volume Resistivity

D257	ohm-cm	10 ¹⁷	10 ¹⁷
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Dielectric Strength (10 mil film)

D149	Volts/mil	1,800	1,800
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Dielectric Constant, 23°C, 1 MHz

D1531		2.5 - 2.6	2.5 - 2.6
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Dissipation Factor, 23°C, 1 MHz

D1531		0.0072	0.0072
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