ETFE 4020

Everflon™ Fluoropolymers

Ethylene-tetra-fluoro-ethylene
Extrusion&Injection Pellets

DESCRIPTION

Everflon™ ETFE 4020 is a special-purpose fluoroplastic resin available in translucent, 2.5-mm (0.1-in) pellets. Compared with other grades of Everflon™ , it has a higher flow rate and still maintains a service temperature of 150 °C (302 °F).

Everflon™ ETFE 4020 and the other Everflon™ fluoroplastics are melt processible, modified copolymers of ethylene and tetrafluoroethylene. They are high-performance resins that can be processed at relatively high rates compared with fluorocarbon resins. They are mechanically tough and offer an excellent balance of properties.

The relatively high flow rate of Everflon™ ETFE 4020 makes it uniquely suitable for high-speed processing, especially for extruded coatings and injection molding of slender, thin-walled, or intricate shapes. Properly processed products made from neat Everflon™ ETFE 4020 are inert to most solvents and chemicals, hydrolytically stable, and weather-resistant.

Recommended upper service temperature is 150 °C (302 °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. Mechanical properties include 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.

Typical Property Data for Everflon™ ETFE 4020 Fluoroplastic Resin

Melt Flow Rate
ASTM D3159

20~30

g/10 min 5kg

Tensile Strength
ASTM D3159

>35

Mpa

Elongation
ASTM D3159

>330

%

Melting Point
ASTM D3159

255

°C

General Property Data for Everflon™ ETFE 4020 Fluoroplastic Resin

Property	Test Method		Unit	Typical Value
MECHANICAL				
Flexural Modulus	ISO 178	ASTM D790	MPa (psi)	1,000 (150,000)
Impact Strength, 23 °C (73 °F)		ASTM D256	J/m (ft·lb/in)	No Break
Compressive Strength		ASTM D659	MPa (psi)	38 (5,500)
Specific Gravity	—	ASTM D792	—	1.7
Hardness Durometer	ISO 868	ASTM D2240	—	D70
ELECTRICAL				
Dielectric Strength, Short Time, 0.25 mm (0.010 in)	IEC 243	ASTM D149	kV/mm (V/mil)	65 (1,700)
Dielectric Constant, 1 MHz (10^6Hz)	IEC 250	ASTM D1531	—	2.5–2.6
Dissipation Factor, 1 MHz (10^6Hz)	IEC 250	ASTM D1531	—	0.0072
Volume Resistivity	ISO 1325	ASTM D257	ohm·cm	10^{17}
Arc Resistance		ASTM D495	second	122
OTHER				
Water Absorption, 24 hr	—	ASTM D570	%	<0.03
Weather and Chemical Resistance	—	—	—	Excellent
Limiting Oxygen Index	ISO 4589	ASTM D2863	%	30–32
Continuous Service Temperature	—	—	°C (°F)	150 (302)
Flammability Classification	—	UL 94	—	V-0

Note: For more information of ETFE properties, please visit www.everflon.com or ETFE Tech Book. These results are based on laboratory tests, under controlled conditions, and do not reflec performance under actual fire conditions.

TYPICAL APPLICATIONS

Everflon™ETFE 4020 is ideal for many end products, including electrical components, such as sleeving, coil forms, sockets, connectors, and switches; lab ware, such as tubing,valves, containers, and fasteners; battery or instrument components that require chemical inertness; and mechanical parts. The high melt flow rate of this product makes it ideal for injection molding and thin wall extrusion.

PROCESSING GUIDE

Everflon™ ETFE 4020 can be processed by conventional, melt-extrusion techniques and injection, compression, transfer, and blow molding processes. Compared with other grades of Everflon™ ETFE, Everflon™ ETFE 4020 provides intermediate processing rates. . Also, the melt viscosity of Everflon™ ETFE is reduced with increasing shear 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 are recommended for 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).

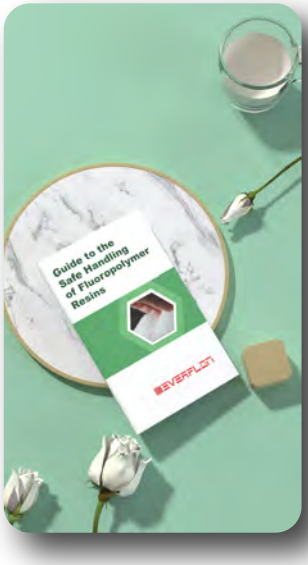
HANDING & PACKAGE

The properties of Everflon™ ETFE esins are not affected by storage time. Ambient storage conditions should be designed to avoid airborne contamination and the formation of water condensation on the resin when it is removed from containers.

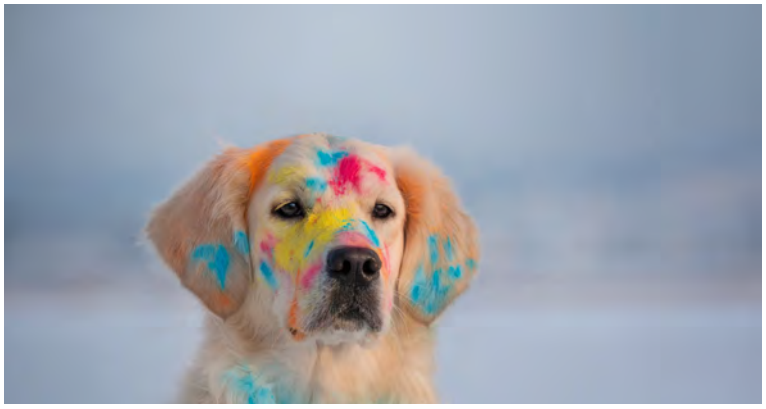
Everflon™ ETFE fluoroplastic resins are packaged in 20-kg (44-lb) plastic bags.

PRECAUTION

Equipment used to process at melt temperatures should be provided with local exhaust ventilation (LEV) to completely remove all fumes and vapors from the processing area. In addition, care should be exercised to avoid the contamination of cigarettes and other forms of smoking tobacco when using fluoroplastic resins. Before processing any fluoroplastics, read the Material Safety Data Sheet.



ABOUT EVERFLON+



Reap the benefits of excellent pigment dispersion in your final polymer mix with Everflon+™ masterbatch formulations for ETFE polymers. Pigment concentration and viscosity can be tailored to your specific application, and formulations are suitable for end-products with wall thicknesses that are as thin as one millimeter or 25 microns.

Color Concentrate

Conductive ETFE Resins are manufactured as ready-to-use products and used in self-regulating or constant wattage heater cables, static dissipative fuel lines, and other applications where conductivity or static dissipation is required.

Everflon+ ETFE Conductive compounds can also be customized for unique application requirements. Customization of products includes melt flow rate and physical properties of final compound as well as conductivity needed for the application.

Consistency and processability are the key factors in developing these compounds. In addition, Everflon+ ETFE Conductive compounds show stable conductivity over a range of shear rates.

Conductive/anti-static

ETFE Cross-linkable Compounds

contain a cross-linking agent, which is used to enhance the toughness of ETFE. commonly required in automotive or aerospace cables. Cross-linking ETFE increases its mechanical properties such as abrasion resistance, cut-through resistance, and tensile strength, especially at elevated temperatures.

ABOUT C&F AND EVERFLON FLUOROPOLYMERS

Everflon™ is brand of C&F Group dealing in fluoropolymers materials including PTFE.FEP.PFA.ETFE and PVDF. On the basis of Everflon, C&F also developing the fluoropolymer applications including tubing,coating and films.

More information could visit www.everflon.com or Everflon™ Fluoropolymers Introduction and C&F Chemicals Book

For more information, visit www.everflon.com
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