

Comparison of Neat ETFE Resin and ETFE Compounds



Equipment, hoses and other components used in industrial settings demand advanced thermoplastic materials to ensure reliable performance. Compounding fluoropolymer resins with fillers such as glass, graphite and carbon pigments can improve the performance of these components, provide solutions to difficult problems and reduce overall life cycle costs and downtime. This chart provides an at-a-glance reference for how AGC Fluon+™ materials can expand the reach of ETFE.

	Neat ETFE Resin	Adhesive ETFE Resin (Fluon+ Adhesive)	Conductive ETFE Resin (Fluon+ MPC)	Flexible ETFE (Fluon+ MPC)	Reinforced ETFE (Fluon+ MPC)
Composition	Pure ethylene-tetrafluoroethylene copolymer	ETFE modified with adhesive-promoting additives	ETFE blended with conductive fillers such as carbon black	ETFE combined with fluoroelastomers (fluorinated elastomers)	ETFE reinforced with chopped or milled fibers for enhanced mechanical properties
Common Applications	Cable jacketing, tubing, roofing films, wire insulation, tubing, architectural films	Laminates (e.g., with polyimide), solar backsheets, adhesive films	ESD-safe liners, EMI shielding, antistatic tubing	Flexible seals, gaskets, impact-resistant coatings	Structural components, pump housings, valve parts
THERMAL PROPERTIES					
Thermal Stability	Continuous use 150 °C to 180 °C				
Thermal Conductivity	Inherently low (0.25 W/mK)	Inherently low	Slightly increased	Inherently low	Slightly increased
Melting Point	225 - 265 °C (grade dependent)			225 °C	265 °C
Coefficient of Friction	(~0.3-0.4)	Moderate			
MECHANICAL PROPERTIES					
Tensile Strength	High (30-50 MPa)			Reduced (10 MPa)	Higher (~80-100+ MPa)
Flexibility & Toughness	Relatively rigid and tough			Improved flexibility and impact resistance	Improved rigidity and toughness
Elongation	Extremely high (>300%)		Lower (100-200%)	Extremely high (>300%)	Reduced (typically <50%)
Chemical Resistance	Outstanding resistance to solvents, acids and bases				Strong resistance, but slightly reduced due to fillers
Abrasion Resistance	Good			Enhanced abrasion and wear resistance	
Impact Resistance	Excellent				Slightly decreased
ELECTRICAL & CONDUCTIVITY					
Insulating Properties	Excellent		Non-insulating; intentionally conductive	Excellent	
Dielectric Properties	Low dielectric constant (~2.6)		Higher conductivity	Low dielectric constant (~2.6)	Higher conductivity
Volume Resistivity	Extremely high (>10 ¹⁷ ohm-cm)		Range: 10 ¹ -10 ⁹ ohm-cm (dissipative and conductive grades available)	Extremely high	High to extremely high
OPTICAL AND SURFACE PROPERTIES					
Transparency	High (clear films possible)		Opaque (typically black or gray)	Transparent to opaque	Opaque
Adhesion	Limited adhesion to most substrates without surface treatment	Good adhesion to most substrates like metal, PET, or polyimide	Limited adhesion to most substrates without surface treatment		
Surface Energy	Moderate				
Surface Finish	Smooth				Rougher; may require post treatment
PROCESSABILITY					
Processability	Excellent (easy to extrude or mold)	Excellent (optimized for lamination or co-extrusion)	Good (fillers affect flow)	Excellent (easy to extrude or mold)	Good (higher viscosity and increased tool wear)