FEP
Features and Properties

FEP

Extruded FEP insulated high voltage wire and cable offers exceptional dielectric strength without the disadvantages common to equally rated silicone rubber insulated cables. As a result, cable assemblies or cable bundles are of smaller diameter and therefore take up substantially less volume and have a smaller bend radius which allows the designer to better utilize the space within the system. It has good corona inception qualities and its construction gives it excellent durability and resistance to dielectric/cooling fluid degradation.

W e difficult to bond to, with the use of Reynolds proper abrading and coating preparations an excellent silastic bond is possible. Additionally, FEP insulation, being a harder material than silicone rubber, is not prone to pin-holing and high voltage punch-thru when the cable surface is abraded or when strands break during in-field service. FEP is also more resistant to damage when making contact with sharp edges.

FEP cable should not only be considered for use in cable assemblies, but as high voltage hook-up wire within encapsulated high voltage power supplies, TWTs and transformers.

Low DC corona inception, particularly after numerous temperature cycles, is another advantage of FEP over silicone cables. Teflon tape wrapped cable, which is similar to FEP in dielectric strength and corona inception, is difficult to bond to because of its multiple spiral cross section, irregular surface and variations in diameter

Properties of FEP Fluorocarbon Resin

Physical, Thermal and Electrical Properties	Typical Values
Specific Gravity	2.14
Tensile Strength (PSI)	3,500
Elongation (%)	.325
Flexual Modules (PSI)	90,000
Thermal Conductivity (cal/scc/cm°F)	$6X10^{-4}$
Thermal Expansion (In/In/°F)	$7.5 X 10^{-5}$
Continuous Use Temperature ("C)	204
Melt Temperature ("C)	255–265
Low Temperature Limit (°C)	-240
Hardness Durometer	D56
Water Absorption (%)	<01
Flame Resistance	Excellent
Dielectric Constant, $60-10^6$ Hz	2.1
Dissipation Factor, $60-10^6$ Hz	<.0007
Volume Resistivity (Ohms-Cm)	$<10^{18}$
Surface Resistivity (Ohms/Sq.)	$<10^{16}$

Resistance to:	Rating
Cold Flow or Cut Through	Fair
Ultraviolet Radiation	Excellent
Electro-Mechanical Stress Cracking	Excellent
Chemical-Mechanical Stress Cracking	Excellent

Conductor Material

Copper

Conductor Finish

Silver Plate- per test requirements of ASTM B298. Meets solderability per MIL-STD-202.

Note: Preconditioning of FEP cable after cutting to length is recommended because FEP cable will shrink when exposed to temperature cycling. Pre-conditioning should be conducted in an air circulating oven at 204°C (400°F) for one hour.