PFA Properties

Applications:

- Non-shrink and heat shrink tubing
- Heat Exchangers
- Medical PFA Tubing
- Foamed Coaxial Cable
- Foamed Plenum Wires
- Chemical Equipment Lining
- Semiconductor Wafer Baskets
- Drum Liners
- Piping for Semiconductor Industry
- Coatings
    - Light Bulbs
    - Chemical Processing Equipment
    - Electronics Manufacturing Equipment
    - Mold Release
    - Paint Spray Cups

Inert to:

- Strong Mineral Acids
- Inorganic Bases
- Inorganic Oxidizing Agents
- Salt Solutions
- Organic Acids
- Anhydrides
- Aromatics
- Alcohols
- Aldehydes
- Ketones
- Ethers
- Esters
- Chlorocarbons

CHEMICAL PROPERTIES AND REASONING

Reduced Chain Length	→	Improved Flow
Increased Chain Entanglements	→	Improved Creep Resistance
Oxygen Atom at Branch in Chain	→	Thermal Stability Similar to PTFE
Increased Melting Point	→	Upper Use Temperatures similar to PTFE

PFA – Perfluoroalkoxy (vinyl ether) – TYPICAL PROPERTIES

Property	Value	Units	Method
MECHANICAL PROPERTIES			
Tensile Strength, 73°F	4060 – 4500 28 to 31	psi MPa	
Elongation, 73°F	260 – 300	%	
Flexural Strength, 73°F	No break at flexure		D 790
Impact Strength, Izod	No break		
Compressive Stress at 1% deformation,	MPa		D 695
Yield Strength At 23 deg C	1740 12	psi MPa	
Density (as polymerized)	2.12 to 2.17	gm/cu.cm	
THERMAL PROPERTIES			
Coefficient of Linear Expansion 20 to 100 deg C	12 x 10-5	K-1	
Melting Point	575-590 300-310	deg F deg C	
Thermal Conductivity	1.45 0.209	Btu·in/h·ft2·°F W/m·K	ASTM C 177
Specific Heat	0.25 1.047	Btu/lb/deg F kJ/Kg/deg K	
Heat Distortion Temperature, 66 lb/sq.in (0 .455 MPa)	158 to 171 70 – 77	deg F deg C	D 648
Service Temperature	-418 to 403 -250 to 206	deg F deg C	
Processing Temperature	698 – 743 370 – 395	deg F deg C	

ELECTRICAL PROPERTIES			
Dielectric Strength, short time, 0.080"		MV m-1	
Surface Arc-Resistance	>300 (does not trac k)	sec	D 495
Volume Resistivity, dry, @ 50% RH	>1018	ohm-cm	D 257
Surface Resistivity, @ 100% RH	1016	ohm/sq.	
Dielectric Constant 1kHz to 1GHz	2.06	ε	D150-81
Dielectric Strength	78.8*	kV mm-1	D149
Dissipation Factor @ 60 Hz – 1 MHz	<0.0001		D150-81

OTHER PROPERTIES			
Refractive Index	1.344	nD 25	D 542
Water Absorption	<0.1	%	D570-81
Flame Rating+	VE-0		UL-94
Limiting Oxygen Index	95	% Oxygen	D 2863
Resistance to Weathering	Excellent		
Specific Gravity	2.12-2.17		D792-66 (1979)
Static coefficient of friction	0.05-0.08		
CO2 Permeability	273	Ng cm m-2 s-1	
O2 Permeability	637	Ng cm m-2 s-1	
N2 Permeability	91	Ng cm m-2 s-1	

+ Numerical rating for flame spread is not intended to reflect hazards presented by this or any other material under actual fire conditions

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