Summary Of Properties

Extruded Fluoropolymers

The table below lists the generally-accepted summary of electrical, mechanical and thermal properties of the four fluoropolymer resins from which ZEUS fabricates its line of tubing, beading, shapes and unique wire insulations.

	PROPERTY	ASTM	UNITS	PTFE	FEP	PFA	ETFE	PDVF	PEEK	LDPE	HDPE
MECHANICAL	Tensile Strength	D 1708	PSI	2,500-4,000	3,500	4,000	7,500	D 638 5,000	D 638 13,300	D638 2,100	D638 4,500
	Specific Gravity	D 792		2.13-2.24	2.15	2.15	1.70	1.8	1.32	.92-.94	.95-.97
	Coefficient of Friction	Dynamic (<10 ft/min)		0.1	0.2	0.2	0.23	0.3	0.18		
	Compressive Strength	D 695	PSI	3,500	2,200		7,100	11,600	17,100		2,700-3,600
	Impact Strength 73°F	D 256	Ft-Lb/in	3.5	No Break	No Break	No Break	3-6	655	1.0	10
	Flexural Modulus 73°F	D 790	PSI	27,000	95,000	95,000	200,000		530,800		100,000
	Tensile Modulus	D 638	PSI	80,000	60,000	40,000	120,000	348,000	522,100	38-75	155-155
	Hardness-Durometer	D 2240		D-50-65	D-55	D-60	D-75	D-76-80		D50	D64
	Elongation	D 1708	%	200-400	300	300	100-300	D 638 150	D 638 50	D638 425	D638 7,800
	Flexural Strength	D 790	PSI	No Break	No Break	No Break	37.9 5,500	10,750	24,700		
	Water Absorption	D 570	%	<0.01	<0.01	0.03	<0.03	<0.04	<0.05	<0.01	<0.01
	Deformation Under Load (73°F, 1000 PSI, 24 HR)	D 621		3.5	1.8	2.0	0.6				
	Linear Coefficient of Expansion (70-212°F) (212-300°F) (300-408°F)	D 696	in/in/°F	 3.8 5 x 10^5 4.2 5 x 10^5 5.0 5 x 10^5	4.5-5.8 x 10^5	 6.7 x 10^5 9.4 x 10^6 11.1 x 10^5	 5.0 x 10^4 7.0 x 10^4	7.1 x 10^5	2.6 x 10^5	In/In/°c 2 x 10^4	In/In/°c 1.1 x 10^6
	Flex Life (MIT)			>1,000,000	15,000	15,000	12,000				
	Creep Resistance	D 674	LB/Sq In			40,000					
ELECTRICAL	Dielectric Strength (Short Term) 10Mil Film	D 149	V/Mil	>1,400	>2,000	>2,000	>2,000	>1080	>500	450-1000	450-500
	Volume Resistivity	D 257	ohm-cm	>10^{18}	>10^{18}	10^{18}	>10^{16}	>10^{13}	>4.9 10^{16}		
	Surface Resistivity	D 257	ohm/Sq	>10^{18}	>10^{16}	>10^{17}	>10^{14}				
THERMAL	Continuous Service Temperature		°F	500	400	500	302	235	482	190	248
	Melting Point	DTA	°F	635-650	500-530	575-590	490-535	352	633	350	370
	Thermal Conductivity	C-177	BTU/hr/ft²/°F. in	1.7	1.4	1.32	1.65	1.31	1.2		
	Heat of Fusion		BTU/lb	29-37	11	13	20				
	Specific Heat 25°C 100°C 200°C 275°C	C-177	Cal/g/°C	 0.23 0.25 0.27 0.29	0.26	 0.256 0.283 0.334 0.391	0.46-0.47	.30-.34			
	Low Temperature Embrittlement		°F				-150°				
	Deflection Temperature 66 PSI 264 PSI		°F	 252 131	 138 134	 166 118	 220 160	 235	 285	 220	 340
	Heat of Combustion		BTU/lb	2.200		2,200	8,100				
OTHER	Flammability Rating	UL 94		VO	VO	VO	VO	VO	VO	VO	VO
	Retractive Index	D 542		1.35	1.338	1.35	1.40				
	Limiting Oxygen Index			>95	>95	>95	30-31				