

Zeus Inc. Summary Of Properties

Extruded Fluoropolymers

The table below lists the generally accepted summary of electrical, mechanical and thermal properties of non-pigmented polymer resins from which ZEUS fabricates its line of tubing, beading, shapes and other unique extrusions.

	PROPERTY	ASTM	UNITS	PTFE	FEP	PFA	ETFE	PVDF	PEEK	LDPE	HDPE
M E C H A N I C A L	Tensile Strength	D1708	PSI	2,500-4,000	3,500	4,000	7,500	D638 5,000	D638 13,300	D638 2,100	D638 4,500
	Specific Gravity	D792		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	0.35-0.5	0.18	
	Compressive Strength	D695	PSI	3,500	2,200		7,100	11,600	17,100	2,700-3,600	
	Impact Strength 73°F	D256	Ft-Lb/in	3.5	No Break	No Break	No Break	3-6	655	1.0	10
	Flexural Modulus 73°F	D790	PSI	27,000	95,000	95,000	200,000		530,800		100,000
	Tensile Modulus	D638	PSI	80,000	60,000	40,000	120,000	348,000	522,100	38-75	155-155
	Hardness-Durometer	D2240		D-50-65	D-55	D-60	D-75	D-76-80		D50	D64
	Elongation	D1708	%	200-400	300	300	100-300	D638 150	D638 50	D638 425	D638 7,800
	Flexural Strength	D790	PSI	No Break	No Break	No Break	37.9 5,500	10,750	24,700		
E L E C T R I C A L	Water Absorption	D570	%	<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)	D621		3.5	1.8	2.0	0.6				
	Linear Coefficient of Expansion (70-212°F) (212-300°F) (300-408°F)	D696	in/in/°F	7.5x10 ⁻⁵ 8.5x10 ⁻⁵ 10.5x10 ⁻⁵	4.5-5.8x10 ⁻⁵	6.7x10 ⁻⁵ 9.4x10 ⁻⁵ 11.1x10 ⁻⁵	5.0x10 ⁻⁴ 7.0x10 ⁻⁴	7.1x10 ⁻⁵	2.6x10 ⁻⁵	ln/ln/°c 2x10 ⁻⁴	ln/ln/°c 1.1x10 ⁻⁵
	Flex Life (MIT)			>1,000,000	15,000	15,000	12,000				
	Creep Resistance	D674	LB/Sq In			40,000					
	Dielectric Strength (ShortTerm) 10Mil Film	D149	V/Mil	>1,400	>2,000	>2,000	>2,000	>1080	>500	450-1000	450-500
	Volume Resistivity	D257	ohm-cm	>10 ¹⁸	>10 ¹⁸	10 ¹⁸	>10 ¹⁶	>10 ¹³	>4.9x10 ¹⁶		
	Surface Resistivity	D257	ohm/Sq	>10 ¹⁸	>10 ¹⁴	10 ¹⁷	>10 ¹⁴				
	Continuous Service Temperature		°F(°C)	500(260)	400(204.4)	500(260)	302(150)	235(112.8)	500(260)	190(87.78)	248(120)
	Melting Point	DTA	°F(°C)	635-650(335-343.3)	500-530(260-276.7)	575-590(307-30)	490-535(254.4-279.4)	352(77.8)	633(333.9)	350(176.7)	370(187.8)
T H E R M A L	Thermal Conductivity	C-177	BTU/hr/ft ² /°F.in	1.7	1.4	1.32	1.65	1.31	1.2		
	Heat of Fusion		BTU/lb	29-37	11	13	20				
S P E C I F I C H E A T	Specific Heat	C-177	Cal/g/°C								
	25°C			0.23	0.26	0.256	0.46-0.47	.30-.34			
	100°C			0.25		0.283					
	200°C			0.27		0.334					
	275°C			0.29		0.391					
L O W T E M P E R A T U R E	Low Temperature Embrittlement		°F(°C)				-150°(-101.1)				
	Deflection Temperature 66 PSI 264 PSI		°F(°C)	252(122.2) 131(55)	138(58.89) 134(56.67)	166(74.44) 118(47.78)	220(104.4) 160(71.11)	235(112.8)	285(140.6)	220(104.4)	340(171.1)
	Heat of Combustion		BTU/lb	2.200		2,200	8,100				
O T H E R	Flammability Rating	UL 94		VO	VO	VO	VO	VO	VO	VO	VO
	Refractive Index	D542		1.35	1.338	1.35	1.40				
	Limiting Oxygen Index			>95	>95	>95	30-31				

Authorized Distributor:

**Aetna Plastics Corp. 9075 Bank Street, Valley View, OH 44125 • Tel: 800-634-3074
216-781-4421 • Fax: 216-524-2280 • sales@aetnaplastics.com • www.aetnaplastics.com**