

# TYPICAL INSULATION SYSTEM PROPERTIES

THERMAL	PVC	Halar-E-CTFE	PVC-Mylar	Kynar	Teflon-PFA	Poly-Sulfone	FEP	Kapton	TFE	Tefzel ETFE
Maximum Continuous Rating (C°)	105	135	105	135	260	150	200	200	260	150
Low Temperature (C°)	-50	-100	-60	-70	-200	-100	-200	-200	-200	-100
Non-Flammability	Very Good	Excellent	Very Good	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Solder Resistant	Good	Very Good	Very Good	Very Good	Very Good	Very Good	Excellent	Excellent	Excellent	Excellent
Smoke	Moderate	Slight	Moderate	Slight	None	Moderate	None	None	None	Slight

ELECTRICAL	PVC	Halar-E-CTFE	PVC-Mylar	Kynar	Teflon-PFA	Poly-Sulfone	FEP	Kapton	TFE	Tefzel ETFE
Volume Resistivity (ohm-cm)	10 <sup>12</sup>	10 <sup>13</sup>	10 <sup>16</sup>	2x10 <sup>14</sup>	10 <sup>18</sup>	5x10 <sup>16</sup>	2x10 <sup>18</sup>	10 <sup>18</sup>	10 <sup>12</sup>	10 <sup>16</sup>
Dielectric Strength VPM, 1/8" thick	350	490	(1 mil film) 350	450	430	400	430	420	430	400
Dielectric Constant	5.70	2.60	3.50	7.70	2.06	3.13	2.00	2.40	2.00	2.60
Dissipation Factor (1 kHz)	.09	.002	.03	.02	.0002	.001	0.4	.001	.0002	.0008
Capacitive Frequency Stability	Fair	Excellent	Good	Poor	Excellent	Good	Excellent	Excellent	Excellent	Excellent

MECHANICAL	PVC	Halar-E-CTFE	PVC-Mylar	Kynar	Teflon-PFA	Poly-Sulfone	FEP	Kapton	TFE	Tefzel ETFE
Density (gm/cc)	1.36	1.68	1.48	1.76	2.15	1.24	2.18	1.68 (67% polyimide)	2.20	1.70
Tensile, psi	4,000	7,000	15,000	6,000	4,000	10,000	2,700	17,000	2,500	6,500
Elongation, %	250	200	50	250	300	100	250	75	225	100-400
Abrasion Resistance	Fair	Fair	Good	Excellent	Good	Excellent	Good	Excellent	Good	Excellent
Cut-through Resistance	Good	Good	Excellent	Excellent	Fair	Excellent	Fair	Excellent	Fair	Excellent
Bondability	Good	Good	Good	Good	Poor (without special treatment)	Good	Poor (without special treatment)	Excellent	Poor (without special treatment)	Good

ENVIRONMENTAL	PVC	Halar-E-CTFE	PVC-Mylar	Kynar	Teflon-PFA	Poly-Sulfone	FEP	Kapton	TFE	Tefzel ETFE
Nuclear Radiation	Fair	100 megarads	Fair	Excellent	Fair	Good	Fair	200 megarads	Fair	approx. 100 megarads
UV Radiation	Fair	Excellent	Fair	Excellent	Excellent	Fair	Excellent	Excellent	Excellent	Excellent

CHEMICAL	PVC	Halar-E-CTFE	PVC-Mylar	Kynar	Teflon-PFA	Poly-Sulfone	FEP	Kapton	TFE	Tefzel ETFE
Water Absorbtion	0.7%	.01%	.06%	.04%	.03%	.05%	.01%	.8%	.01%	.1%
Acids	Good	Excellent	Good	Very Good	Excellent	Good	Excellent	Fair	Excellent	Excellent
Alkali	Good	Excellent	Poor	Very Good	Excellent	Good	Excellent	Fair	Excellent	Excellent
Alcohol	Fair	Excellent	Fair	Very Good	Excellent	Fair	Excellent	Very Good	Excellent	Excellent
Cleaning Solvents (tri-chlor, carbon, tetr)	Slight Swell	Excellent	Good	Very Good	Excellent	Crazes	Excellent	Very Good	Excellent	Excellent
Aliphatic Hydrocarbons (gasoline, kersosene)	Slight Swell	Excellent	Fair	Very Good	Excellent	Good	Excellent	Very Good	Excellent	Excellent
Aromatic Hydrocarbons (benzene, toulene)	Slight Swell	Excellent	Fair	Very Good	Excellent	Crazes	Excellent	Very Good	Excellent	Excellent
Long Term Stability	Fair	Excellent	Good	Very Good	Excellent	Very Good	Excellent	Excellent	Excellent	Excellent

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