

TABLE I

KYNAR® Homopolymer Series

PHYSICAL PROPERTIES ⁽¹⁾	STANDARD/CONDITIONS	UNITS	VP - J1A		VP - 20	
			460	1000 SERIES ⁽²⁾	700 SERIES ⁽²⁾	370 ⁽³⁾
Refractive Index	D542 / at Sodium D line 77°F		1.42	1.42	1.42	—
Specific Gravity	D792 / 73°F		1.75 — 1.77	1.76 — 1.78	1.77 — 1.79	1.84 — 1.88
Water Absorption	D570 / 20°C Immersion/ 24 Hours	%	0.02 — 0.04	0.01 — 0.03	0.01 — 0.03	0.04 — 0.06

MECHANICAL PROPERTIES ⁽¹⁾	STANDARD/CONDITIONS	UNITS	VP - J1A		VP - 20	
			460	1000 SERIES ⁽²⁾	700 SERIES ⁽²⁾	370 ⁽³⁾
Flexural Strength @ 5% Strain	D790 / 73°F	psi	7,000 — 9,000	8,500 — 11,000	8,500 — 11,000	20,000 — 30,000
Flexural Modulus	D790 / 73°F	psi	200,000 — 260,000	240,000 — 335,000	240,000 — 335,000	800,000 — 1,000,000
Tensile Yield Elongation	D638 / 73°F	%	10 — 15	5 — 10	5 — 10	0 — 4
Tensile Yield Strength	D638 / 73°F	psi	5,000 — 7,500	6,500 — 8,000	6,000 — 8,000	5,000 — 8,000
Tensile Break Elongation	D638 / 73°F	%	50 — 250	20 — 100	50 — 200	0 — 20
Tensile Break Strength	D638 / 73°F	psi	4,500 — 7,000	5,000 — 7,000	5,000 — 7,000	5,500 — 8,000
Tensile Modulus	D638 / 73°F	psi	150,000 — 200,000	200,000 — 335,000	200,000 — 335,000	450,000 — 750,000
Compressive Strength	D695 / 73°F	psi	8,000 — 10,000	10,000 — 15,000	10,000 — 15,000	20,000 — 25,000
Deflection Temperature	D648 / at 264 psi	°F	176 — 194	220 — 230	221 — 239	230 — 260
Deflection Temperature	D648 / at 66 psi	°F	234 — 284	—	257 — 284	270 — 300
Impact Strength Notched Izod	D256 / 73°F	Ft-Lb/In	2 — 4	2 — 4	2 — 4	0.75 — 1.50
Impact Strength Unnotched Izod	D256 / 73°F	Ft-Lb/In	15 — 40	20 — 80	20 — 80	5 — 10
Hardness	D2240 / 73°F	Shore D	75 — 80	77 — 82	76 — 80	74 — 79
Tabor Abrasion	CS-17 1000g:pad	mg/1000 cycles	7 — 9	5 — 9	5 — 9	—
Coefficient of Friction - Static vs. Steel	ASTM D 1894 73°F		0.23	0.22	0.20	0.18
Coefficient of Friction - Dynamic vs. Steel	ASTM D 1894 73°F		0.17	0.15	0.14	0.12

THERMAL PROPERTIES ⁽¹⁾	STANDARD/CONDITIONS	UNITS	VP - J1A		VP - 20	
			460	1000 SERIES ⁽²⁾	700 SERIES ⁽²⁾	370 ⁽³⁾
Melting Temperature	D3418	°F	311 — 320	337 — 340	329 — 338	329 — 338
Tg (DMA)	@ 1 Hz	°F	-41 — -37	-41 — -37	-41 — -37	-41 — -37
Coefficient of Linear Thermal Expansion	D696	10E-5/°F	5.0 — 7.0	6.6 — 8.0	6.6 — 8.0	2.0 — 2.5
Thermal Conductivity	ASTM D433	BTU-in/hr.ft ² .°F	1.18 — 1.32	1.18 — 1.32	1.18 — 1.32	—
Specific Heat	DSC	BTU/Lb.°F	0.28 — 0.36	0.28 — 0.36	0.28 — 0.36	—
Thermal Decomposition TGA	1% wt. loss/ in air	°F	707	707	707	707
Thermal Decomposition TGA	1% wt. loss/ in nitrogen	°F	770	770	770	770
Thermal Decomposition TGA	Ash weight %/ in air	%	0 — 5	0 — 5	0 — 5	—

ELECTRICAL PROPERTIES ⁽¹⁾	STANDARD/CONDITIONS	UNITS	VP - J1A		VP - 20	
			460	1000 SERIES ⁽²⁾	700 SERIES ⁽²⁾	370 ⁽³⁾
Dielectric Strength 73°F	D149 / 73°F	KV/Mil	1.6	1.6	1.7	—
Dielectric Constant 73°F	D150 / 100 Hz		8.0 — 9.5	8.0 — 9.5	8.0 — 9.5	—
Dielectric Constant 73°F	D150 / 1 kHz		7.5 — 9.0	7.5 — 9.0	7.5 — 9.0	33.5
Dielectric Constant 73°F	D150 / 10 kHz		7.3 — 8.8	7.3 — 8.8	7.3 — 8.8	—
Dielectric Constant 73°F	D150 / 100 kHz		7.0 — 8.5	7.0 — 8.5	7.0 — 8.5	28.8
Dielectric Constant 73°F	D150 / 1 MHz		6.2 — 7.0	6.2 — 7.0	6.2 — 7.0	—
Dielectric Constant 73°F	D150 / 100 MHz		4.5 — 5.5	4.5 — 5.5	4.5 — 5.5	—
Dissipation Factor 73°C	D150 / 100 Hz		0.10 — 0.16	0.10 — 0.16	0.10 — 0.16	—
Dissipation Factor 73°C	D150 / 1 kHz		0.01 — 0.03	0.01 — 0.03	0.01 — 0.03	0.06
Dissipation Factor 73°C	D150 / 10 kHz		0.02 — 0.04	0.02 — 0.04	0.02 — 0.04	—
Dissipation Factor 73°C	D150 / 100 kHz		0.02 — 0.07	0.02 — 0.07	0.02 — 0.07	0.08
Dissipation Factor 73°C	D150 / 1 MHz		0.10 — 0.13	0.10 — 0.17	0.10 — 0.13	—
Dissipation Factor 73°C	D150 / 100 MHz		0.15 — 0.21	0.17 — 0.25	0.15 — 0.21	—
Volume Resistivity	D257 / DC 68°F/ 65% R.H.	ohm-cm	2 x 10 ¹⁴	2 x 10 ¹⁴	2 x 10 ¹⁴	1 x 10 ¹¹

FLAME & SMOKE PROPERTIES ⁽¹⁾	STANDARD/CONDITIONS	UNITS	VP - J1A		VP - 20	
			460	1000 SERIES ⁽²⁾	700 SERIES ⁽²⁾	370 ⁽³⁾
Burning Rate	UL / Bulletin 94		V — 0	V — 0	V — 0	V — 0
Limiting Oxygen Index	D2868	% O ₂	44	60	44 / 60 ⁽⁴⁾	44

1. Typical property values; should not be construed as sales specifications. 2. The KYNAR 700 PVDF and KYNAR 1000 PVDF series span a wide range of melt viscosities (see page 12). Please contact an ATOFINA representative for typical values on specific grades. 3. Filled with graphite powder to reduce mold shrinkage. 4. Optional product available with higher LOI.