

TECHNICAL DATA SHEET

KYNAR® 461F POWDER

FLUORINATED HOMOPOLYMER POWDER

KYNAR® resins are fluorinated thermoplastic homopolymers.

Outstanding characteristics: chemical resistance, imperviousness to UV, high barrier properties, high purity, good mechanical and thermo-mechanical properties.

KYNAR® 461F resin is a standard grade of powder for extrusion of tubes, cables and plaques, compression and transfer molding.

DESIGNATION

PVDF

MAIN APPLICATIONS

- Water Membrane - Others
- Water Membrane

DELIVERY FORM

- Powder

RHEOLOGICAL PROPERTIES

PROPERTIES	VALUE	TEST STANDARD
Melt volume flow rate (MVR), 230°C / 21.6 kg (445°F / 47.6 lb)	5.6 cm ³ /10min	ISO 1133
Melt flow index (MFR), 230°C / 21.6 kg (445°F / 47.6 lb)	6-14 g/10min	ASTM D1238
Shrinkage, Normal (t+24h)	2 %	ISO 294-4
Shrinkage, Parallel (t+24h)	2 %	ISO 294-4
Melt viscosity, 230°C (445°F) at 100 s ⁻¹	23.5 - 29.5 kPo	ASTM D3835
Melt flow index (MFR), 235°C / 5 kg (455°F / 11 lb)	6 - 14 g/10min	ASTM D1238

MECHANICAL PROPERTIES

PROPERTIES	VALUE	TEST STANDARD
Tensile modulus, 23°C (73°F)	1380 MPa	ASTM D638
Tensile modulus, 23°C (73°F) (slksölk)	1030-1380 MPa	ASTM D638
Yield stress, 23°C (73°F)	34.5 - 51.7 MPa	ASTM D638
Yield strain, 23°C (73°F), 50 mm/min	13 %	ISO 527-1/-2
Stress at break, 23°C (73°F)	31 - 48.3 MPa	ASTM D638
Strain at break, 23°C (73°F)	10-15 %	ASTM D638
Nominal strain at break	W50 %	ISO 527-1/-2
Flexural modulus, 23°C (73°F)	1380 - 1790 MPa	ASTM D790
Taber abrasion resistance, Wheel CS 17, load 1 kg, 1000 cycles	7-9	ASTM G195-13A
Hardness, Shore D	75 - 80	ASTM D2240
Stress at 5% strain, 23°C (73°F)	48.3-62.1 MPa	ASTM D790
Compression strength, 23°C (73°F)	55.2 - 68.9 MPa	ASTM D695
Charpy notched impact strength (Z axis), 23°C (73°F)	0.0961-0.214 kJ/m ²	ASTM D256

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PROPERTIES	VALUE	TEST STANDARD
Charpy unnotched impact strength, 23°C (73°F)	0.801-2.14 kJ/m ²	ASTM D256
Coefficient of friction dynamic vs steel, 23°C (73°F)	0.17	ASTM D1895
Coefficient of friction static vs steel, 23°C (73°F)	0.23	ASTM D1894
Izod impact unnotched strength, 23°C (73°F)	0.801 - 2.14 kJ/m ²	ASTM D256
Izod impact notched strength, 23°C (73°F)	0.0961 - 0.214 J/m	ASTM D256
Nominal strain at break, 23°C (73°F), 50 mm/min	>50 %	ISO 527-1/-2
Abrasion resistance, Wheel CS 17, load 1 kg, 1000 cycles	7 - 9 mg	ASTM G195-13A

THERMAL PROPERTIES

PROPERTIES	VALUE	TEST STANDARD
Glass transition temperature, 10°C/min	-40 °C	ISO 11357-1/-2
Heat deflection temperature, 1.8 MPa	85 °C	ISO 75-1/-2
Heat deflection temperature, 1.8 MPa	85 °C	ISO 75-1/-2
Oxygen index	43 %	ISO 4589-1/-2
Limiting oxygen index (LOI)	44 %	ASTM D2863
Specific heat temperature, 23°C (73°F)	745 - 958	ISO 11357-1/-2
Coefficient of linear thermal expansion, 23°C (73°F)	90 - 126 10E-6 / °K	ASTM D696
Heat deflection temperature, 1.8 MPa, 138°C/h	80 - 90 °C	ASTM D648
Heat deflection temperature, 0.45 MPa, 138°C/h	112-140 °C	ASTM D648
Thermal conductivity	0.17 - 0.19 W/m-K	ASTM D433
Melting temperature, 10°C/min	161 °C	ISO 11357-1/-3
Thermal degradation temperature, Under air at 10°C/min	375 °C	ISO 11357-1/-2
Thermal degradation temperature, Under nitrogen at 10°C/min	410 °C	ISO 11357-1/-2

ELECTRICAL PROPERTIES

PROPERTIES	VALUE	TEST STANDARD
Relative permittivity, 1MHz	6.7	IEC 60250
Relative permittivity, 100Hz	9	IEC 60250
Dielectric constant, 1kHz	4.5 - 9.5	ASTM D150
Dissipation factor	0.01 - 0.21	ASTM D150
Dissipation factor, 100Hz	1300 E-4	IEC 60250
Volumic (transversal) resistivity	2E12 ohm*m	IEC 62631-3-1
Surface resistivity, 23°C (73,4°F)	5.1E+11 - 5.3E+11 ohm/sq	ASTM D257
Dielectric strength, 23°C (73,4°F)	1.6 kV/mm	IEC 60243-1
Dissipation factor, 1MHz	700 E-4	IEC 60250

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OTHER PROPERTIES

PROPERTIES	VALUE	TEST STANDARD
Water absorption, Saturated in water at 23°C (73°F)	0.04 %	ISO 62
Apparent density	1760 %	
Specific gravity, 23°C (73°F)	1.75 - 1.77 g/cm ³	

SPECIAL CHARACTERISTICS

- Flame & smoke

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