KYNAR®

TECHNICAL DATA SHEET

KYNAR® 461F POWDER

FLUORINATED HOMOPOLYMER POWDER

KYNAR® resins are fluorinated thermoplastic homopolymers.
Outstanding characteristics: chemical resistance, resistance 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.

TYPE

PVDF

MAIN APPLICATIONS

- water membrane - others
- water membrane

DELIVERY FORM

- Powder

RHEOLOGICAL PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Melt volume flow rate (MVR), 230°C / 21.6 kg (446°F / 47.6 lb)	5.6	cm^3/10min	ISO 1133
Melt flow index (MFR), 230°C / 21.6 kg (446°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 (446°F) at 100 s-1	23.5 - 29.5	kPo	ASTM D3835
Melt flow index (MFR), 230°C / 5 kg (446°F / 11 lb)	6 - 14	g/10min	ASTM D1238

MECHANICAL PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	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)	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
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/m2	ASTM D256

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PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Charpy unnotched impact strength, 23°C (73°F)	0.801-2.14	kJ/m2	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/m2	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	%	ISO 527-1/-2
Abrasion resistance, wheel CS 17, load 1 kg, 1000 cycles	7 - 9	mg	ASTM G195-13A

THERMAL PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	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	TYPICAL VALUE	UNIT	TEST STANDARD
Relative permittivity, 1MHz	6.7		IEC 62631-2-1
Relative permittivity, 100Hz	9		IEC 62631-2-1
Dielectric constant, 1kHz	4.5 - 9.5		ASTM D150
Dissipation factor	0.01 - 0.21		ASTM D150
Dissipation factor, 100Hz	1300	E-4	IEC 62631-2-1
Volumic (transversal) resistivity	2.0E+12	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 62631-2-1

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OTHER PROPERTIES

PROPERTIES	TYPICAL VALUE	UNIT	TEST STANDARD
Apparent density	1760	%	
Density, 23°C (73°F)	1.75 - 1.77	g/cm³	ISO 1183-1
Water absorption, at equilibrium at 23°C (73°F) / Immersion	0.04	%	ISO 62

SPECIAL CHARACTERISTICS

- Flame & smoke

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