

## TECHNICAL DATA SHEET KYNAR® 9000 HD

### FLUORINATED HOMOPOLYMER PELLET

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® 9000 HD resin is a standard grade of granules for injection molding of thin walled parts and multifilament extrusion.

#### DESIGNATION

PVDF

#### MAIN APPLICATIONS

- Molding

#### DELIVERY FORM

- Pellets

#### TRANSFORMATION PROCESSES

- Injection Molding

### RHEOLOGICAL PROPERTIES

プロパティ	価値	テスト基準
Melt viscosity, 230°C (445°F) at 100 s-1	5 - 8 kPo	ASTM D3835
Shrinkage, Normal (t+24h)	2.0 %	ISO 294-4
Shrinkage, Parallel (t+24h)	2.0 %	ISO 294-4
Melt flow index (MFR), 235°C / 5 kg (455°F / 11 lb)	16 - 30 g/10min	ASTM D1238
Melt volume flow rate (MVR), 230°C / 5 kg (446°F / 11 lb)	10 cm³/10min	ISO 1133

### MECHANICAL PROPERTIES

プロパティ	価値	テスト基準
Yield stress, 23°C (73°F)	44.8 - 55.2 MPa	ASTM D638
Stress at break, 23°C (73°F)	34.5 - 55.2 MPa	ASTM D638
Compression strength, 23°C (73°F)	68.9 - 103 MPa	ASTM D695
Izod impact unnotched strength, 23°C (73°F)	1.07 - 4.27 kJ/m2	ASTM D256
Izod impact notched strength, 23°C (73°F)	0.0961 - 0.214 J/m	ASTM D256
Charpy unnotched impact strength, 23°C (73°F)	232 kJ/m2	ISO 179 1eU
Charpy unnotched impact strength, -30°C (-22°F)	218 kJ/m2	ISO 179 1eU
Charpy notched impact strength, 23°C (73°F)	11 kJ/m2	ISO 179 1eA
Charpy notched impact strength, -30°C (-22°F)	5 kJ/m2	ISO 179 1eA
Hardness, Shore D	76 - 80	ASTM D2240
Nominal strain at break, 23°C (73°F), 50 mm/min	40 %	ISO 527-1/-2
Yield strain, 23°C (73°F), 50 mm/min	8 %	ISO 527-1/-2
Flexural modulus, 23°C (73°F)	1380 - 2310 MPa	ASTM D790

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プロパティ	価値	テスト基準
Tensile modulus, 23°C (73°F)	2310 MPa	ASTM D638
Coefficient of friction dynamic vs steel, 23°C (73°F)	0.14	ASTM D1895
Coefficient of friction static vs steel, 23°C (73°F)	0.2	ASTM D1894
Abrasion resistance, Wheel CS 17, load 1 kg, 1000 cycles	5 - 9 mg	ASTM G195-13A

## THERMAL PROPERTIES

プロパティ	価値	テスト基準
Glass transition temperature, 10°C/min	-40 °C	ISO 11357-1/-2
Vicat softening temperature, 50N at 50°C/h	141 °C	ISO 306
Limiting oxygen index (LOI)	60 %	ASTM D2863
Coefficient of linear thermal expansion, 23°C (73°F)	119 - 144 10E-6 / °K	ASTM D696
Heat deflection temperature, 1.8 MPa	110 °C	ISO 75-1/-2
Heat deflection temperature, 1.8 MPa, 138°C/h	105 - 115 °C	ASTM D648
Heat deflection temperature, 0.45 MPa, 138°C/h	125-140 °C	ASTM D648
Melting temperature, 10°C/min	171 °C	ISO 11357-1/-3

## ELECTRICAL PROPERTIES

プロパティ	価値	テスト基準
Dielectric constant, 1kHz	0.5 - 4.5	ASTM D150
Volumic (transversal) resistivity, DC, 20°C (68°F)/50%RH	2.0E+12 ohm*m	ASTM D257
Relative permittivity, 100Hz	10	IEC 60250
Relative permittivity, 1MHz	7.5	IEC 60250
Dissipation factor, 100Hz	310 E-4	IEC 60250
Dissipation factor, 1MHz	2160 E-4	IEC 60250
Dissipation factor	0.01 - 0.21	ASTM D150

## OTHER PROPERTIES

プロパティ	価値	テスト基準
Moisture absorption, At equilibrium at 23°C (73°F) / 50%RH	0.015 %	ISO 62
Specific gravity, 23°C (73°F)	1.76 - 1.78 g/cm³	
Water absorption, Saturated in water at 23°C (73°F)	0.03 %	ISO 62

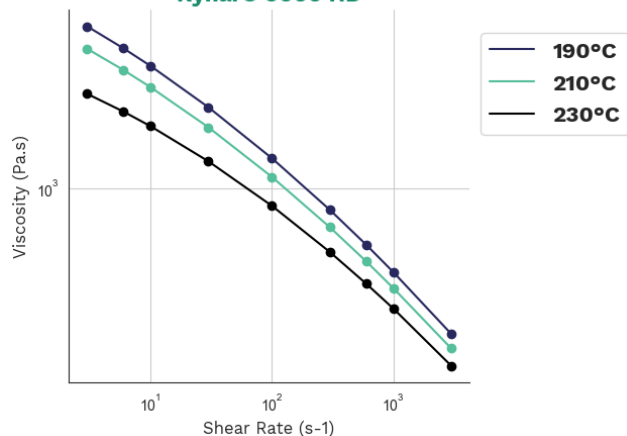
## SPECIAL CHARACTERISTICS

- Flame & smoke

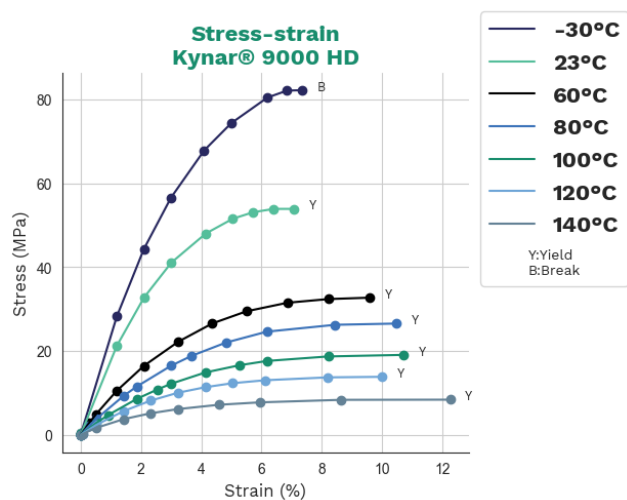
# KYNAR® 9000 HD

## DIAGRAMS

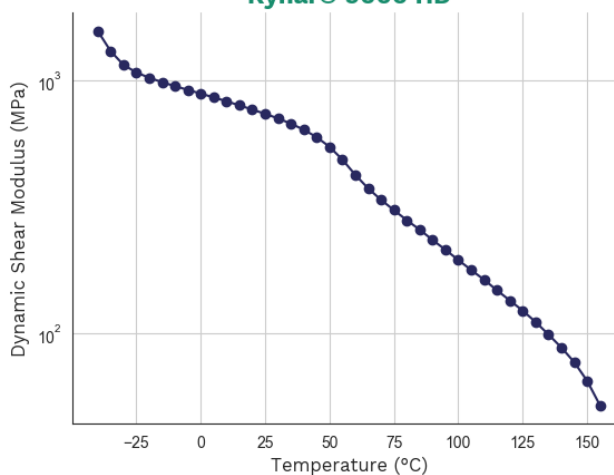
**Viscosity-shear rate**  
Kynar® 9000 HD



**Stress-strain**  
Kynar® 9000 HD



**Dynamic Shear modulus-temperature**  
Kynar® 9000 HD



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