

Arkema Group KYNAR® 740 Polyvinylidene Fluoride Homopolymer - Injection Molding and Extrusion

Category : Polymer , Thermoplastic , Fluoropolymer , PVDF , Polyvinylidene fluoride (PVDF), Molded/Extruded

Material Notes:

Characteristics: Natural resin - translucent, off-white hemispheres. High stability in harsh thermal, chemical and ultraviolet environments. High toughness and mechanical strength, low permeability, fire resistance, abrasion resistance; low-smoke emission; high purity
 Applications: Chemical processing – production, storage and transfer of corrosive fluids
 Electronics – protective sheathing, plenum and wiring insulation
 Semi-conductor industry
 Food stuff and Healthcare industries
 Transportation – fuel line and pipe, thermoformed body components
 Listed properties are typical for 700 series. Information provided by Arkema Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Arkema-Group-KYNAR-740-Polyvinylidene-Fluoride-Homopolymer-Injection-Molding-and-Extrusion.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.77 - 1.79 g/cc	1.77 - 1.79 g/cc	ASTM D792
Bulk Density	0.961 g/cc	0.0347 lb/in ³	
Water Absorption	0.010 - 0.030 % @Time 86400 sec	0.010 - 0.030 % @Time 24.0 hour	Immersion; ASTM D570
Viscosity	1.50e+6 - 2.30e+6 cP @Shear Rate 100 1/s, Temperature 232 °C	1.50e+6 - 2.30e+6 cP @Shear Rate 100 1/s, Temperature 450 °F	Melt Viscosity; ASTM D3835
Linear Mold Shrinkage, Flow	0.028 - 0.035 cm/cm @Time 86400 sec	0.028 - 0.035 in/in @Time 24.0 hour	
Linear Mold Shrinkage, Transverse	0.019 - 0.030 cm/cm @Time 86400 sec	0.019 - 0.030 in/in @Time 24.0 hour	
Melt Flow	6.0 - 25 g/10 min @Load 12.5 kg, Temperature 232 °C	6.0 - 25 g/10 min @Load 27.6 lb, Temperature 450 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	75 - 80	75 - 80	ASTM D2240
Tensile Strength at Break	34.0 - 55.0 MPa	4930 - 7980 psi	ASTM D638
Tensile Strength, Yield	45.0 - 55.0 MPa	6530 - 7980 psi	ASTM D638
Elongation at Break	50 - 200 %	50 - 200 %	ASTM D638
Elongation at Yield	5.0 - 10 %	5.0 - 10 %	ASTM D638

Mechanical Properties	Metric	English	Comments
Tensile Modulus	1.379 - 2.31 GPa	200.0 - 335 ksi	ASTM D638
Flexural Strength	58.0 - 76.0 MPa @Strain 5.00 %	8410 - 11000 psi @Strain 5.00 %	ASTM D790
Flexural Modulus	1.655 - 2.31 GPa	240.0 - 335 ksi	ASTM D790
Compressive Strength	69.0 - 103 MPa	10000 - 14900 psi	ASTM D695
Izod Impact, Notched	1.07 - 2.14 J/cm	2.00 - 4.00 ft-lb/in	ASTM D256
Izod Impact, Unnotched	10.7 - 42.7 J/cm	20.0 - 80.0 ft-lb/in	ASTM D256
Coefficient of Friction, Dynamic	0.14	0.14	vs. steel; ASTM D1894
Coefficient of Friction, Static	0.20	0.20	vs. steel; ASTM D1894
Taber Abrasion, mg/1000 Cycles	5.0 - 9.0	5.0 - 9.0	1000 g pad; CS-17

Thermal Properties	Metric	English	Comments
CTE, linear	86.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	47.8 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature -40.0 $^{\circ}\text{C}$	@Temperature -40.0 $^{\circ}\text{F}$	
	114 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	63.3 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 0.000 $^{\circ}\text{C}$	@Temperature 32.0 $^{\circ}\text{F}$	
	119 - 144 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	66.0 - 80.0 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	ASTM D696
	@Temperature 22.8 $^{\circ}\text{C}$	@Temperature 73.0 $^{\circ}\text{F}$	
	167 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	92.8 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 70.0 $^{\circ}\text{C}$	@Temperature 158 $^{\circ}\text{F}$	
	188 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	104 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 85.0 $^{\circ}\text{C}$	@Temperature 185 $^{\circ}\text{F}$	
Specific Heat Capacity	1.17 - 1.51 J/g- $^{\circ}\text{C}$	0.280 - 0.360 BTU/lb- $^{\circ}\text{F}$	DSC
Thermal Conductivity	0.170 - 0.190 W/m-K	1.18 - 1.32 BTU-in/hr-ft ² - $^{\circ}\text{F}$	ASTM D433
Melting Point	165 - 172 $^{\circ}\text{C}$	329 - 342 $^{\circ}\text{F}$	
Deflection Temperature at 0.46 MPa (66 psi)	125 - 140 $^{\circ}\text{C}$	257 - 284 $^{\circ}\text{F}$	ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	105 - 115 $^{\circ}\text{C}$	221 - 239 $^{\circ}\text{F}$	ASTM D648
	-40.0 - -38.0 $^{\circ}\text{C}$	-40.0 - -36.4 $^{\circ}\text{F}$	

Thermal Properties	Metric	English	Comments
Decomposition Temperature	375 °C	707 °F	1% wt loss / in air; TGA
	410 °C	770 °F	1% wt loss / in nitrogen; TGA
Flammability, UL94	V-0	V-0	
Oxygen Index	44 %	44 %	ASTM D2868
	60 %	60 %	select grades; ASTM D2868

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.00e+14 ohm-cm @Temperature 20.0 °C	2.00e+14 ohm-cm @Temperature 68.0 °F	65% RH; ASTM D257
Dielectric Constant	4.5 @Frequency 1.00e+8 Hz	4.5 @Frequency 1.00e+8 Hz	ASTM D150
	9.5 @Frequency 100 Hz	9.5 @Frequency 100 Hz	ASTM D150
Dielectric Strength	66.9 kV/mm	1700 kV/in	ASTM D149
Dissipation Factor	0.010 - 0.21 @Frequency 100 Hz	0.010 - 0.21 @Frequency 100 Hz	ASTM D150

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	190 - 220 °C	374 - 428 °F	Pipe Extrusion
	195 - 220 °C	383 - 428 °F	Tube Extrusion
	200 - 220 °C	392 - 428 °F	Injection Molding
Middle Barrel Temperature	200 - 230 °C	392 - 446 °F	Pipe Extrusion
	210 - 230 °C	410 - 446 °F	Injection Molding
	210 - 240 °C	410 - 464 °F	Tube Extrusion
Front Barrel Temperature	210 - 240 °C	410 - 464 °F	Pipe Extrusion
	210 - 240 °C	410 - 464 °F	Tube Extrusion
	210 - 245 °C	410 - 473 °F	Injection Molding
Nozzle Temperature	210 - 245 °C	410 - 473 °F	Injection Molding

Die Temperature Processing Properties	210 - 250 °C Metric	410 - 482 °F English	Pipe Extrusion Comments
	210 - 250 °C	410 - 482 °F	Tube Extrusion
Head Temperature	210 - 240 °C	410 - 464 °F	Pipe Extrusion
	210 - 240 °C	410 - 464 °F	Tube Extrusion
Mold Temperature	50.0 - 90.0 °C	122 - 194 °F	Injection Molding

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