

Makrolon® FR6005

Covestro - Polycarbonates - Polycarbonate

General Information
Product Description

 MVR (300 °C/1.2 kg) 9.0 cm³/10 min; medium viscosity; easy release; flame retardant; impact modified; good surface quality; injection molding - melt temperature 300°C; electrical/electronic; housing parts

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Additive	• Flame Retardant • Impact Modifier		
Features	• Flame Retardant • Good Mold Release	• Good Surface Finish • Impact Modified	• Medium Viscosity
Uses	• Electrical/Electronic Applications • Housings		
Processing Method	• Injection Molding		
ISO Designation	• PC-FR		

Properties ¹

Physical	Nominal Value	Unit	Test Method
Density (73°F)	1.20	g/cm ³	ISO 1183
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	9.0	cm ³ /10min	ISO 1133
Molding Shrinkage			ISO 294-4
Across Flow	0.60 to 0.80	%	
Flow	0.60 to 0.80	%	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	334000	psi	ISO 527-1/1
Tensile Stress (Yield, 73°F)	8990	psi	ISO 527-2/50
Tensile Stress (Break, 73°F)	9570	psi	ISO 527-2/50
Tensile Strain (Yield, 73°F)	6.0	%	ISO 527-2/50
Tensile Strain (Break, 73°F)	140	%	ISO 527-2/50
Nominal Tensile Strain at Break (73°F)	> 50	%	ISO 527-2/50
Flexural Modulus ² (73°F)	348000	psi	ISO 178
Flexural Stress ² (73°F)	13100	psi	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F, Complete Break	9.5	ft·lb/in ²	
14°F, Complete Break	24	ft·lb/in ²	
73°F, Partial Break	32	ft·lb/in ²	
Notched Izod Impact Strength ³			ISO 180/A
-22°F, Complete Break	7.1	ft·lb/in ²	
14°F, Partial Break	24	ft·lb/in ²	
73°F, Partial Break	29	ft·lb/in ²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-22°F	40.6	ft·lb	
73°F	39.8	ft·lb	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F	1370	lbf	
73°F	1150	lbf	
Thermal	Nominal Value	Unit	Test Method



Deflection Temperature Under Load (66 psi, Unannealed)	277 °F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	250 °F	ISO 75-2/A
Vicat Softening Temperature		
--	291 °F	ISO 306/B120
--	288 °F	ISO 306/B50
Ball Pressure Test (273°F)	Pass	IEC 60695-10-2
CLTE - Flow (73 to 131°F)	3.9E-5 in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.9E-5 in/in/°F	ISO 11359-2
RTI Elec (0.030 in)	239 °F	UL 746B
RTI Imp (0.030 in)	221 °F	UL 746B
RTI Str (0.030 in)	239 °F	UL 746B
Electrical	Nominal Value	Unit
Surface Resistivity	4.0E+17	ohms
Volume Resistivity	9.0E+18	ohms·cm
Comparative Tracking Index (Solution A)	200	V
Flammability	Nominal Value	Unit
Flame Rating		
0.05 in	V-1	
0.04 in, BK	V-0	
0.05 in, BK	V-0	
0.06 in	V-0	
0.12 in	V-0	
Glow Wire Flammability Index		IEC 60695-2-12
0.04 in	1560 °F	
0.06 in	1760 °F	
0.12 in	1760 °F	
Glow Wire Ignition Temperature		IEC 60695-2-13
0.04 in	1610 °F	
0.06 in	1560 °F	
0.12 in	1650 °F	

Processing Information

Injection	Nominal Value	Unit
Drying Temperature - Dry Air Dryer	248	°F
Drying Time - Dry Air Dryer	2.0 to 3.0	hr
Suggested Max Moisture	< 0.020	%
Suggested Shot Size	30 to 70	%
Rear Temperature	482 to 500	°F
Middle Temperature	518 to 536	°F
Front Temperature	536 to 554	°F
Nozzle Temperature	554 to 572	°F
Processing (Melt) Temp	536 to 608	°F
Mold Temperature	176 to 248	°F
Back Pressure	725 to 2180	psi
Vent Depth	9.8E-4 to 3.0E-3	in
Injection Notes		
Standard Melt Temperature: 300°C		
Peripheral Screw Speed: 0.05 - 0.2 m/s		
Hold Pressure (% of Injection Pressure): 50 - 75%		

Notes

¹ Typical properties: these are not to be construed as specifications.

² 0.079 in/min

³ 3.0 mm

