

Makrolon® FR6040

 Covestro - Polycarbonates - *Polycarbonate*
General Information
Product Description

polycarbonate; easy release; UV stabilized; flame retardant; toughness at low temperature; injection molding; Information technology; electrical/electronic

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East	• Europe	• North America
	• Asia Pacific	• Latin America	
Additive	• Flame Retardant	• UV Stabilizer	
Features	• Flame Retardant	• Low Temperature Toughness	
	• Good Mold Release	• UV Stabilized	
Uses	• Electrical/Electronic Applications		
Processing Method	• Injection Molding		
ISO Designation	• PC-I FR(40)		

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)	10	cm ³ /10min	ISO 1133
Molding Shrinkage ²			ISO 294-4
Across Flow	0.70	%	
Flow	0.75	%	
Water Absorption (Saturation, 73°F)	0.18	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	319000	psi	ISO 527-1/1
Tensile Stress (Yield, 73°F)	7980	psi	ISO 527-2/50
Tensile Strain (Yield, 73°F)	5.6	%	ISO 527-2/50
Tensile Strain (Break, 73°F)	> 50	%	ISO 527-2/50
Flexural Modulus ³ (73°F)	334000	psi	ISO 178
Flexural Stress ³ (3.5% Strain, 73°F)	10200	psi	ISO 178
Flexural Strain at Flexural Strength ⁴ (73°F)	986	psi	
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F	24	ft·lb/in ²	
-4°F	26	ft·lb/in ²	
14°F	29	ft·lb/in ²	
73°F	31	ft·lb/in ²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F	No Break		
73°F	No Break		
Notched Izod Impact Strength			ISO 180/A
-22°F	21	ft·lb/in ²	
-4°F	24	ft·lb/in ²	
14°F	26	ft·lb/in ²	
73°F	29	ft·lb/in ²	
Unnotched Izod Impact Strength (-22°F)	No Break		ISO 180
Multi-Axial Instrumented Impact Energy (73°F)	33.2	ft·lb	ISO 6603-2



Multi-Axial Instrumented Impact Peak Force (73°F)	1080 lbf	ISO 6603-2
Hardness	Nominal Value Unit	Test Method
Ball Indentation Hardness	15500 psi	ISO 2039-1
Thermal	Nominal Value Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	264 °F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	237 °F	ISO 75-2/A
Vicat Softening Temperature		
--	275 °F	ISO 306/B120
--	273 °F	ISO 306/B50
CLTE - Flow (73 to 131°F)	3.5E-5 in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.8E-5 in/in/°F	ISO 11359-2
Electrical	Nominal Value Unit	Test Method
Surface Resistivity	1.0E+17 ohms	IEC 60093
Volume Resistivity	1.0E+18 ohms·cm	IEC 60093
Flammability	Nominal Value Unit	Test Method
Flame Rating		UL 94
0.06 in	V-0	
0.08 in	5VB	
Fill Analysis	Nominal Value Unit	Test Method
Melt Viscosity (572°F, 1000 sec ⁻¹)	225 Pa·s	ASTM D3835

Processing Information

Injection	Nominal Value Unit
Drying Temperature - Dry Air Dryer	248 °F
Drying Time - Dry Air Dryer	> 4.0 hr

Notes

- ¹ Typical properties: these are not to be construed as specifications.
- ² 60x60x2 mm
- ³ 0.079 in/min
- ⁴ 2.0 mm/min

