

**Makrolon® MD4821**

 Covestro - Polycarbonates - *Polycarbonate*
**General Information**
**Product Description**

medium viscosity; easy release; impact modified; glass fiber reinforced; improved chemical resistance compared to standard Makrolon grades; housing parts; Information technology; electrical/electronic

**General**

Material Status	• Commercial: Active
Availability	• Africa & Middle East • Europe • North America • Asia Pacific • Latin America
Filler / Reinforcement	• Glass Fiber, 20% Filler by Weight
Additive	• Impact Modifier
Features	• Chemical Resistant • Impact Modified • Good Mold Release • Medium Viscosity
Uses	• Electrical/Electronic Applications • Housings
ISO Designation	• PC-I-GF20

**Properties <sup>1</sup>**

Physical	Nominal Value	Unit	Test Method
Density (73°F)	1.31	g/cm <sup>3</sup>	ISO 1183
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	9.0	cm <sup>3</sup> /10min	ISO 1133
Molding Shrinkage			ISO 2577
Across Flow	0.20 to 0.50	%	
Flow	0.20 to 0.50	%	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	885000	psi	ISO 527-1/1
Tensile Stress (Break, 73°F)	14200	psi	ISO 527-2/5
Tensile Strain (Break, 73°F)	3.0	%	ISO 527-2/5
Flexural Modulus <sup>2</sup> (73°F)	818000	psi	ISO 178
Flexural Stress <sup>2</sup> (73°F)	22900	psi	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength <sup>3</sup>			ISO 179/1eA
-22°F, Complete Break	6.2	ft·lb/in <sup>2</sup>	
73°F, Complete Break	8.1	ft·lb/in <sup>2</sup>	
Notched Izod Impact Strength <sup>3</sup>			ISO 180/A
-22°F, Complete Break	7.1	ft·lb/in <sup>2</sup>	
73°F, Complete Break	9.0	ft·lb/in <sup>2</sup>	
Unnotched Izod Impact Strength (73°F)	24	ft·lb/in <sup>2</sup>	ISO 180
Multi-Axial Instrumented Impact Energy (73°F)	5.90	ft·lb	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force (73°F)	252	lbf	ISO 6603-2
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	288	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	280	°F	ISO 75-2/A
Vicat Softening Temperature			
--	297	°F	ISO 306/B120
--	293	°F	ISO 306/B50
CLTE - Flow (73 to 131°F)	1.3E-5	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.2E-5	in/in/°F	ISO 11359-2

**Processing Information**


Injection	Nominal Value	Unit
Drying Temperature - Dry Air Dryer	248	°F
Drying Time - Dry Air Dryer	4.0 to 6.0	hr

#### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> 0.079 in/min

<sup>3</sup> 3.0 mm

