

**Makrolon® TC210**

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

 moderate thermal conductivity; MVR (300 °C/1.2 kg) 4.0 cm<sup>3</sup>/10 min; high viscosity; values based on lab or small scale production; injection molding - melt temperature 300°C; available in white only; electrical/electronic

**General**

Material Status	• Commercial: Active
Availability	• Africa & Middle East • Europe • North America • Asia Pacific • Latin America
Features	• High Viscosity • Thermally Conductive
Uses	• Electrical/Electronic Applications
Appearance	• White
Processing Method	• Injection Molding
ISO Designation	• PC-TD40

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

Physical	Nominal Value	Unit	Test Method
Density (73°F)	1.56	g/cm <sup>3</sup>	ISO 1183
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	4.0	cm <sup>3</sup> /10min	ISO 1133
Molding Shrinkage - Across Flow (0.0787 in)	0.30 to 0.40	%	ISO 294-4
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	1.13E+6	psi	ISO 527-1/1
Tensile Stress (Break, 73°F)	7110	psi	ISO 527-2/5
Nominal Tensile Strain at Break (73°F)	1.4	%	ISO 527-2/5
Flexural Modulus <sup>2</sup> (73°F)	1.26E+6	psi	ISO 178
Flexural Stress <sup>2</sup> (73°F)	11600	psi	ISO 178
Flexural Strain at Flexural Strength <sup>3</sup> (73°F)	1.5	%	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Unnotched Impact Strength (73°F)	5.7	ft-lb/in <sup>2</sup>	ISO 179/1eU
Multi-Axial Instrumented Impact Energy (73°F)	2.21	ft-lb	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force (73°F)	135	lbf	ISO 6603-2
Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness	18600	psi	ISO 2039-1
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	291	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	277	°F	ISO 75-2/A
Vicat Softening Temperature	295	°F	ISO 306/B50
CLTE - Flow (73 to 131°F)	1.7E-5	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	2.8E-5	in/in/°F	ISO 11359-2
Thermal Conductivity			ISO 8302
73°F <sup>4</sup>	2.1	Btu-in/hr/ft <sup>2</sup> /°F	
73°F <sup>5</sup>	9.7	Btu-in/hr/ft <sup>2</sup> /°F	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+16	ohms	IEC 60093
Volume Resistivity (73°F)	> 1.0E+18	ohms·cm	IEC 60093
Electric Strength (73°F, 0.0394 in)	1000	V/mil	IEC 60243-1
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.04 in)	HB		UL 94
Glow Wire Flammability Index (0.06 in)	1560	°F	IEC 60695-2-12



Glow Wire Ignition Temperature (0.06 in)	1560 °F	IEC 60695-2-13
<b>Fill Analysis</b>	<b>Nominal Value Unit</b>	<b>Test Method</b>
Melt Viscosity <sup>6</sup>		ISO 11443-A
536°F	300 Pa·s	
572°F	180 Pa·s	

### Processing Information

Injection	Nominal Value Unit
Drying Temperature - Dry Air Dryer	248 °F
Drying Time - Dry Air Dryer	4.0 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> 2.0 mm/min

<sup>4</sup> Across Flow

<sup>5</sup> Parallel

<sup>6</sup> 1000s-1

