

## Makrolon® FR6011

Covestro - Polycarbonates - *Polycarbonate*

### General Information

#### Product Description

medium viscosity; impact modified; UV stabilized; flame retardant; improved chemical resistance compared to standard Makrolon grades; available in opaque colors only; 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	• UV Stabilizer
Features	• Chemical Resistant • Flame Retardant	• Impact Modified • Medium Viscosity	• UV Stabilized
Uses	• Electrical/Electronic Applications	• Housings	
Appearance	• Colors Available	• Opaque	
ISO Designation	• PC-I FR(40)		

### Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Density (73°F)	1.19	g/cm <sup>3</sup>	ISO 1183
Melt Volume-Flow Rate (MVR)			ISO 1133
300°C/1.2 kg	4.0	cm <sup>3</sup> /10min	
300°C/5.0 kg	25	cm <sup>3</sup> /10min	
Molding Shrinkage			ISO 2577
Across Flow	0.60 to 0.80	%	
Flow	0.60 to 0.80	%	
Water Absorption (Saturation, 73°F)	0.36	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.12	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	326000	psi	ISO 527-1/1
Tensile Stress (Yield, 73°F)	8700	psi	ISO 527-2/50
Tensile Strain (Yield, 73°F)	5.9	%	ISO 527-2/50
Nominal Tensile Strain at Break (73°F)	> 50	%	ISO 527-2/50
Flexural Modulus <sup>2</sup> (73°F)	326000	psi	ISO 178
Flexural Stress <sup>2</sup> (73°F)	12900	psi	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F	No Break		
73°F	No Break		
Notched Izod Impact Strength <sup>3</sup>			ISO 180/A
-22°F, Complete Break	9.5	ft·lb/in <sup>2</sup>	
14°F, Partial Break	29	ft·lb/in <sup>2</sup>	
73°F, Partial Break	33	ft·lb/in <sup>2</sup>	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-22°F	42.0	ft·lb	
73°F	37.6	ft·lb	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F	1390	lbf	
73°F	1120	lbf	



<b>Thermal</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Deflection Temperature Under Load (66 psi, Unannealed)	264	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	239	°F	ISO 75-2/A
Vicat Softening Temperature			
--	280	°F	ISO 306/B120
--	277	°F	ISO 306/B50
<b>Flammability</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Flame Rating			UL 94
0.04 in	V-1		
0.06 in	V-0		
Glow Wire Flammability Index			IEC 60695-2-12
0.04 in	1760	°F	
0.06 in	1760	°F	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.04 in	1610	°F	
0.06 in	1560	°F	
<b>Fill Analysis</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Melt Viscosity (572°F, 1000 sec <sup>-1</sup> )	320	Pa·s	ASTM D3835

### Processing Information

<b>Injection</b>	<b>Nominal Value</b>	<b>Unit</b>
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> 3.0 mm

