

## Makrolon® 1837

Covestro - Polycarbonates - *Polycarbonate*

### General Information

#### Product Description

MVR (300°C/1.2 kg) 11 cm<sup>3</sup>/10 min; impact modified; medium viscosity; easy release; injection molding - melt temperature 280 - 320°C; available in opaque colors only

#### General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Additive	• Impact Modifier		
Features	• Good Mold Release	• Impact Modified	• Medium Viscosity
RoHS Compliance	• RoHS Compliant		
Appearance	• Colors Available	• Opaque	
Processing Method	• Injection Molding		
ISO Designation	• ISO 7391-PC,MP,(,)-09-9		

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

Physical	Nominal Value	Unit	Test Method
Density (73°F)	1.19	g/cm <sup>3</sup>	ISO 1183
Apparent (Bulk) Density <sup>2</sup>	0.64	g/cm <sup>3</sup>	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	12	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	11	cm <sup>3</sup> /10min	ISO 1133
Molding Shrinkage			
Across Flow	0.60 to 0.80	%	ISO 2577
Flow	0.60 to 0.80	%	ISO 2577
Across Flow : 536°F, 0.0787 in <sup>3</sup>	0.70	%	ISO 294-4
Flow : 0.0787 in <sup>3</sup>	0.65	%	ISO 294-4
Water Absorption (Saturation, 73°F)	0.40	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.12	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	319000	psi	ISO 527-1/1
Tensile Stress (Yield, 73°F)	8410	psi	ISO 527-2/50
Tensile Stress (Break, 73°F)	8700	psi	ISO 527-2/50
Tensile Strain (Yield, 73°F)	5.7	%	ISO 527-2/50
Tensile Strain (Break, 73°F)	120	%	ISO 527-2/50
Nominal Tensile Strain at Break (73°F)	> 50	%	ISO 527-2/50
Flexural Modulus <sup>4</sup> (73°F)	319000	psi	ISO 178
Flexural Stress <sup>4</sup>			ISO 178
73°F	12500	psi	
3.5% Strain, 73°F	9860	psi	
Flexural Strain at Flexural Strength <sup>5</sup> (73°F)	6.8	%	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength <sup>6</sup>			ISO 179/1eA
-22°F, Partial Break	24	ft·lb/in <sup>2</sup>	
73°F, Partial Break	29	ft·lb/in <sup>2</sup>	
Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F	No Break		
-22°F	No Break		



73°F	No Break	
Notched Izod Impact Strength <sup>6</sup>		ISO 180/A
-22°F, Partial Break	21 ft·lb/in <sup>2</sup>	
73°F, Partial Break	29 ft·lb/in <sup>2</sup>	
Multi-Axial Instrumented Impact Energy		ISO 6603-2
-22°F	40.6 ft·lb	
73°F	36.9 ft·lb	
Multi-Axial Instrumented Impact Peak Force		ISO 6603-2
-22°F	1300 lbf	
73°F	1100 lbf	
<b>Hardness</b>	<b>Nominal Value Unit</b>	<b>Test Method</b>
Ball Indentation Hardness	15100 psi	ISO 2039-1
<b>Thermal</b>	<b>Nominal Value Unit</b>	<b>Test Method</b>
Deflection Temperature Under Load (66 psi, Unannealed)	273 °F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	250 °F	ISO 75-2/A
Glass Transition Temperature <sup>7</sup>	289 °F	ISO 11357-2
Vicat Softening Temperature		
--	289 °F	ISO 306/B120
--	286 °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
Thermal Conductivity <sup>8</sup> (73°F)	1.4 Btu·in/hr/ft <sup>2</sup> /°F	ISO 8302
<b>Electrical</b>	<b>Nominal Value Unit</b>	<b>Test Method</b>
Surface Resistivity	1.0E+16 ohms	IEC 60093
Volume Resistivity (73°F)	1.0E+16 ohms·cm	IEC 60093
Electric Strength (73°F, 0.0394 in)	860 V/mil	IEC 60243-1
Relative Permittivity		IEC 60250
73°F, 100 Hz	3.20	
73°F, 1 MHz	3.10	
Dissipation Factor		IEC 60250
73°F, 100 Hz	1.4E-3	
73°F, 1 MHz	0.013	
Comparative Tracking Index		IEC 60112
Solution A	225 V	
Solution B	100 V	
<b>Flammability</b>	<b>Nominal Value Unit</b>	<b>Test Method</b>
Flame Rating (0.030 in)	HB	UL 94
Glow Wire Flammability Index		IEC 60695-2-12
0.030 in	1560 °F	
0.06 in	1610 °F	
0.12 in	1650 °F	
Glow Wire Ignition Temperature		IEC 60695-2-13
0.06 in	1520 °F	
0.08 in	1520 °F	
0.12 in	1560 °F	
Oxygen Index <sup>9</sup>	30 %	ISO 4589-2
Burning Rate <sup>10</sup> (> 39.4 mil)	passed	ISO 3795
Flash Ignition Temperature	842 °F	ASTM D1929
Needle Flame Test		IEC 60695-11-5
59.1 mil <sup>11</sup>	5 sec	
59.1 mil <sup>12</sup>	120 sec	
78.7 mil <sup>11</sup>	5 sec	
78.7 mil <sup>12</sup>	120 sec	
0.12 in <sup>11</sup>	10 sec	
	120 sec	
Temperature	986 °F	AST

### Processing Information

Nominal Value

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

Hold Pressure (% of Injection Pressure): 50 - 75%  
Standard Melt Temperature: 300°C  
Peripheral Screw Speed: 0.05 - 0.2 m/s

#### Notes

- <sup>1</sup> Typical properties: these are not to be construed as specifications.
- <sup>2</sup> Pellets
- <sup>3</sup> 60x60x2mm, 500 bar
- <sup>4</sup> 0.079 in/min
- <sup>5</sup> 2.0 mm/min
- <sup>6</sup> 3 mm
- <sup>7</sup> 10°C/min
- <sup>8</sup> Across Flow
- <sup>9</sup> Procedure A
- <sup>10</sup> US-FMVSS
- <sup>11</sup> Method K
- <sup>12</sup> Method F

