

# Makrolon® 2805

Polycarbonate  
Covestro - Polycarbonates

# PROSPECTOR®

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## Technical Data

### Product Description

MVR (300°C/1.2 kg) 9.0 cm<sup>3</sup>/10 min; general purpose; medium viscosity; easy release; injection molding - melt temperature 280 - 320°C; available in transparent, translucent and opaque colors

### General

Material Status	• Commercial: Active
Literature <sup>1</sup>	• <a href="#">Technical Datasheet (English)</a>
UL Yellow Card <sup>2</sup>	• <a href="#">E41613-100460260</a> • <a href="#">E41613-103640760</a>
Search for UL Yellow Card	• <a href="#">Covestro - Polycarbonates</a> • <a href="#">Makrolon®</a>
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Features	• General Purpose • Good Mold Release • Medium Viscosity
Uses	• General Purpose
RoHS Compliance	• RoHS Compliant
Appearance	• Clear/Transparent • Colors Available • Opaque • Translucent
Processing Method	• Injection Molding
Multi-Point Data	• Creep Modulus vs. Time (ISO 11403) • Isochronous Stress vs. Strain (ISO 11403) • Isothermal Stress vs. Strain (ISO 11403) • Secant Modulus vs. Strain (ISO 11403) • Shear Modulus vs. Temperature (ISO 11403) • Specific Volume vs Temperature (ISO 11403) • Viscosity vs. Shear Rate (ISO 11403)
ISO Shortname	• ISO 7391-PC,MR,(,)-09-9

Physical	Nominal Value Unit	Test Method
Density (23°C)	1.20 g/cm <sup>3</sup>	ISO 1183
Apparent (Bulk) Density <sup>4</sup>	0.66 g/cm <sup>3</sup>	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	9.0 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 : 280°C, 2.00 mm <sup>5</sup>	0.70 %	ISO 294-4
Flow : 2.00 mm <sup>5</sup>	0.65 %	ISO 294-4
Water Absorption		ISO 62
Saturation, 23°C	0.30 %	
Equilibrium, 23°C, 50% RH	0.12 %	

Mechanical	Nominal Value Unit	Test Method
Tensile Modulus (23°C)	2400 MPa	ISO 527-1/1
Tensile Stress		ISO 527-2/50
Yield, 23°C	66.0 MPa	
Break, 23°C	70.0 MPa	
Tensile Strain		ISO 527-2/50
Yield, 23°C	6.2 %	
Break, 23°C	130 %	



Mechanical	Nominal Value Unit	Test Method
Nominal Tensile Strain at Break (23°C)	> 50 %	ISO 527-2/50
Tensile Creep Modulus		ISO 899-1
1 hr	2200 MPa	
1000 hr	1900 MPa	
Flexural Modulus <sup>6</sup> (23°C)	2400 MPa	ISO 178
Flexural Stress <sup>6</sup>		ISO 178
23°C	97.0 MPa	
3.5% Strain, 23°C	73.0 MPa	
Flexural Strain at Flexural Strength <sup>6</sup> (23°C)	7.1 %	ISO 178
Films	Nominal Value Unit	Test Method
Water Vapor Transmission Rate		ISO 15106-1
23°C, 85% RH, 100 µm	15 g/m <sup>2</sup> /24 hr	
Carbon Dioxide Permeability (23°C, 25.4 µm)	16900 cm <sup>3</sup> /m <sup>2</sup> /bar/24 hr	ISO 2556
Gas Permeation		ISO 2556
Carbon Dioxide : 100.0 µm	3800 cm <sup>3</sup> /m <sup>2</sup> /bar/24 hr	
Nitrogen : 25.4 µm	510 cm <sup>3</sup> /m <sup>2</sup> /bar/24 hr	
Nitrogen : 100.0 µm	120 cm <sup>3</sup> /m <sup>2</sup> /bar/24 hr	
Oxygen : 25.4 µm	2760 cm <sup>3</sup> /m <sup>2</sup> /bar/24 hr	
Oxygen : 100.0 µm	650 cm <sup>3</sup> /m <sup>2</sup> /bar/24 hr	
Impact	Nominal Value Unit	Test Method
Charpy Notched Impact Strength <sup>7</sup>		ISO 179/1eA
-30°C, Complete Break	16 kJ/m <sup>2</sup>	
23°C, Partial Break	75 kJ/m <sup>2</sup>	
Charpy Unnotched Impact Strength		ISO 179/1eU
-60°C	No Break	
-30°C	No Break	
23°C	No Break	
Notched Izod Impact Strength <sup>7</sup>		ISO 180/A
-30°C, Complete Break	15 kJ/m <sup>2</sup>	
23°C, Partial Break	70 kJ/m <sup>2</sup>	
Multi-Axial Instrumented Impact Energy		ISO 6603-2
-30°C	65.0 J	
23°C	60.0 J	
Multi-Axial Instrumented Impact Peak Force		ISO 6603-2
-30°C	6300 N	
23°C	5400 N	
Hardness	Nominal Value Unit	Test Method
Ball Indentation Hardness	115 MPa	ISO 2039-1
Thermal	Nominal Value Unit	Test Method
Deflection Temperature Under Load		
0.45 MPa, Unannealed	137 °C	ISO 75-2/B
1.8 MPa, Unannealed	125 °C	ISO 75-2/A
Glass Transition Temperature <sup>8</sup>	145 °C	ISO 11357-2



Thermal	Nominal Value Unit	Test Method
Vicat Softening Temperature		
--	146 °C	ISO 306/B120
--	144 °C	ISO 306/B50
Ball Pressure Test (136°C)	Pass	IEC 60695-10-2
CLTE		ISO 11359-2
Flow : 23 to 55°C	6.5E-5 cm/cm/°C	
Transverse : 23 to 55°C	6.5E-5 cm/cm/°C	
Thermal Conductivity <sup>9</sup> (23°C)	0.20 W/m/K	ISO 8302
RTI Elec (1.5 mm)	125 °C	UL 746B
RTI Imp (1.5 mm)	115 °C	UL 746B
RTI Str (1.5 mm)	125 °C	UL 746B
Electrical	Nominal Value Unit	Test Method
Surface Resistivity	1.0E+16 ohms	IEC 60093
Volume Resistivity (23°C)	1.0E+16 ohms·cm	IEC 60093
Electric Strength (23°C, 1.00 mm)	34 kV/mm	IEC 60243-1
Relative Permittivity		IEC 60250
23°C, 100 Hz	3.10	
23°C, 1 MHz	3.00	
Dissipation Factor		IEC 60250
23°C, 100 Hz	5.0E-4	
23°C, 1 MHz	9.0E-3	
Comparative Tracking Index		IEC 60112
Solution A	250 V	
Solution B	125 V	
Flammability	Nominal Value Unit	Test Method
Flame Rating		UL 94
2.5 mm	HB	
0.75 mm	V-2	
Glow Wire Flammability Index		IEC 60695-2-12
0.75 mm	850 °C	
1.5 mm	850 °C	
3.0 mm	930 °C	
Glow Wire Ignition Temperature		IEC 60695-2-13
0.75 mm	875 °C	
1.0 mm	875 °C	
1.5 mm	875 °C	
3.0 mm	900 °C	
Oxygen Index <sup>10</sup>	28 %	ISO 4589-2
Application of Flame from Small Burner <sup>11</sup>		DIN 53438-1, -3
2.00 mm	K1, F1	
Burning Rate <sup>12</sup> (> 1.00 mm)	passed	ISO 3795
Flash Ignition Temperature	480 °C	ASTM D1929
Glow Wire Test		EDF HN60 E.02
1.50 mm	750 °C	
3.00 mm	750 °C	



Flammability	Nominal Value Unit	Test Method
Needle Flame Test		IEC 60695-11-5
1.50 mm <sup>13</sup>	1.0 min	
1.50 mm <sup>14</sup>	0.1 min	
2.00 mm <sup>13</sup>	1.0 min	
2.00 mm <sup>14</sup>	0.1 min	
3.00 mm <sup>14</sup>	0.2 min	
3.00 mm <sup>13</sup>	2.0 min	

Self Ignition Temperature	550 °C	ASTM D1929
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Optical	Nominal Value Unit	Test Method
Refractive Index <sup>15</sup>	1.586	ISO 489
Light Transmittance		ISO 13468-2
1000 µm	89.0 %	
2000 µm	89.0 %	
3000 µm	88.0 %	
4000 µm	87.0 %	

Haze (3000 µm)	< 0.800 %	ISO 14782
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Additional Information	Nominal Value Unit	Test Method
Electrolytical Corrosion (23°C)	A1	IEC 60426

Injection	Nominal Value Unit
Drying Temperature - Dry Air Dryer	120 °C
Drying Time - Dry Air Dryer	2.0 to 3.0 hr
Suggested Max Moisture	< 0.020 %
Suggested Shot Size	30 to 70 %
Rear Temperature	250 to 260 °C
Middle Temperature	270 to 280 °C
Front Temperature	280 to 290 °C
Nozzle Temperature	290 to 300 °C
Processing (Melt) Temp	280 to 320 °C
Mold Temperature	80 to 120 °C
Back Pressure	5.00 to 15.0 MPa
Vent Depth	0.025 to 0.075 mm

**Injection Notes**

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



## Notes

- <sup>1</sup> These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.
- <sup>2</sup> A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.
- <sup>3</sup> Typical properties: these are not to be construed as specifications.
- <sup>4</sup> Pellets
- <sup>5</sup> 60x60x2mm, 500 bar
- <sup>6</sup> 2.0 mm/min
- <sup>7</sup> 3 mm
- <sup>8</sup> 10°C/min
- <sup>9</sup> Across Flow
- <sup>10</sup> Procedure A
- <sup>11</sup> Method K and F
- <sup>12</sup> US-FMVSS
- <sup>13</sup> Method F
- <sup>14</sup> Method K
- <sup>15</sup> Method A

