

# Makrolon® Rx1805

Polycarbonate

Bayer MaterialScience - Polycarbonates



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## Technical Data

### Product Description

MVR (300 °C/1.2 kg) 15 cm<sup>3</sup>/10 min; medical devices; suitable for sterilization with high-energy radiation; biocompatible according to many ISO 10993-1 test requirements; medium viscosity; injection molding - melt temperature 280 - 320 °C; transparent parts for medical devices

### General

Material Status	• Commercial: Active
Literature <sup>1</sup>	• <a href="#">Technical Datasheet (Chinese (Traditional))</a> • <a href="#">Technical Datasheet (Chinese)</a> • <a href="#">Technical Datasheet (English)</a> • <a href="#">Technical Datasheet (German)</a>
Search for UL Yellow Card	• <a href="#">Bayer MaterialScience - Polycarbonates</a> • <a href="#">Makrolon®</a>
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Features	• Radiation Sterilizable
Uses	• Medical/Healthcare Applications
Agency Ratings	• ISO 10993
RoHS Compliance	• RoHS Compliant
Appearance	• Clear/Transparent
Forms	• Pellets
Multi-Point Data	• Specific Volume vs Temperature (ISO 11403-2) • Viscosity vs. Shear Rate (ISO 11403-2)

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.20 g/cm <sup>3</sup>	1.20 g/cm <sup>3</sup>	ISO 1183
Apparent Density <sup>3</sup>	0.66 g/cm <sup>3</sup>	0.66 g/cm <sup>3</sup>	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	6.5 g/10 min	6.5 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	0.366 in <sup>3</sup> /10min	6.00 cm <sup>3</sup> /10min	ISO 1133
Molding Shrinkage			
Across Flow	0.60 to 0.80 %	0.60 to 0.80 %	ISO 2577
Flow	0.60 to 0.80 %	0.60 to 0.80 %	ISO 2577
Across Flow : 0.0787 in (2.00 mm) <sup>4</sup>	0.70 %	0.70 %	ISO 294-4
Flow : 0.0787 in (2.00 mm) <sup>4</sup>	0.70 %	0.70 %	ISO 294-4
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.30 %	0.30 %	
Equilibrium, 73°F (23°C), 50% RH	0.12 %	0.12 %	

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus (73°F (23°C))	348000 psi	2400 MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield, 73°F (23°C)	9720 psi	67.0 MPa	
Break, 73°F (23°C)	10900 psi	75.0 MPa	
Tensile Strain			ISO 527-2/50
Yield, 73°F (23°C)	6.3 %	6.3 %	
Break, 73°F (23°C)	130 %	130 %	
Nominal Tensile Strain at Break			ISO 527-2/50
73°F (23°C)	> 50 %	> 50 %	
Flexural Modulus <sup>5</sup> (73°F (23°C))	348000 psi	2400 MPa	ISO 178
Flexural Strength <sup>5</sup>			ISO 178
73°F (23°C)	14200 psi	98.0 MPa	
3.5% Strain, 73°F (23°C)	10600 psi	73.0 MPa	

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Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Flexural Strain at Flexural Strength <sup>6</sup> 73°F (23°C)	7.1 %	7.1 %	ISO 178
<b>Impact</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Charpy Notched Impact Strength <sup>7</sup> -22°F (-30°C), Complete Break 73°F (23°C), Partial Break	7.6 ft·lb/in <sup>2</sup> 38 ft·lb/in <sup>2</sup>	16 kJ/m <sup>2</sup> 80 kJ/m <sup>2</sup>	ISO 179/1eA
Charpy Unnotched Impact Strength -76°F (-60°C) -22°F (-30°C) 73°F (23°C)	No Break No Break No Break	No Break No Break No Break	ISO 179/1eU
Notched Izod Impact Strength <sup>8</sup> -22°F (-30°C), Complete Break 73°F (23°C), Partial Break	6.7 ft·lb/in <sup>2</sup> 43 ft·lb/in <sup>2</sup>	14 kJ/m <sup>2</sup> 90 kJ/m <sup>2</sup>	ISO 180/A
Multi-Axial Instrumented Impact Energy -22°F (-30°C) 73°F (23°C)	51.6 ft·lb 47.9 ft·lb	70.0 J 65.0 J	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force -22°F (-30°C) 73°F (23°C)	1480 lbf 1280 lbf	6600 N 5700 N	ISO 6603-2
<b>Hardness</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Ball Indentation Hardness	16500 psi	114 MPa	ISO 2039-1
<b>Thermal</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Heat Deflection Temperature 66 psi (0.45 MPa), Unannealed 264 psi (1.8 MPa), Unannealed	280 °F 259 °F	138 °C 126 °C	ISO 75-2/B ISO 75-2/A
Glass Transition Temperature <sup>9</sup>	293 °F	145 °C	ISO 11357-2
Vicat Softening Temperature -- --	291 °F 293 °F	144 °C 145 °C	ISO 306/B50 ISO 306/B120
Ball Pressure Test (275°F (135°C))	Pass	Pass	IEC 60695-10-2
CLTE			ISO 11359-2
Flow : 73 to 131°F (23 to 55°C) Transverse : 73 to 131°F (23 to 55°C)	0.000036 in/in/°F 0.000036 in/in/°F	0.000065 cm/cm/°C 0.000065 cm/cm/°C	
Thermal Conductivity <sup>10</sup> (73°F (23°C))	1.4 Btu·in/hr/ft <sup>2</sup> /°F	0.20 W/m/K	ISO 8302
<b>Flammability</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Oxygen Index <sup>11</sup>	27 %	27 %	ISO 4589-2
Flash Ignition Temperature	896 °F	480 °C	ASTM D1929
Self Ignition Temperature	1022 °F	550 °C	ASTM D1929
<b>Injection</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	
Processing (Melt) Temp	536 to 608 °F	280 to 320 °C	

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## 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> Typical properties: these are not to be construed as specifications.

<sup>3</sup> Pellets

<sup>4</sup> 60x60x2 mm, 500 bar

<sup>5</sup> 0.079 in/min (2.0 mm/min)

<sup>6</sup> 2 mm/min

<sup>7</sup> 3 mm

<sup>8</sup> 3.2 mm

<sup>9</sup> 10°C/min

<sup>10</sup> Cross-flow, 50% RH

<sup>11</sup> Procedure A

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## Where to Buy

### Supplier

#### **Bayer MaterialScience - Polycarbonates**

Leverkusen, Germany  
**Telephone:** +49-214-30-1  
**Web:** <http://plastics.bayer.com/>

### Distributor

#### **Amco Polymers**

**Telephone:** 800-262-6685  
**Web:** <http://www.amcopolymers.com/>  
**Availability:** North America

#### **Bay State Polymer**

**Telephone:** 800-277-7797  
**Web:** <http://www.baystatepolymer.com/>  
**Availability:** North America

#### **M. Holland Canada Company**

**Telephone:** 905-665-1168  
**Web:** <http://www.mholland.com/>  
**Availability:** Canada

#### **M. Holland Company**

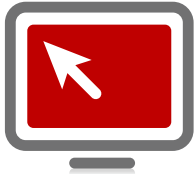
**Telephone:** 855-497-1403  
**Web:** <http://www.mholland.com/>  
**Availability:** Mexico, United States

#### **PolyOne Distribution**

*PolyOne Distribution is a global distribution company. Contact PolyOne Distribution for availability of individual products by country.*  
**Telephone:** 800-894-4266  
**Web:** <http://polyonedistribution.com/>  
**Availability:** Global



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– Birgit Elvardt Bader, Production Manager, Micotron

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– Kevin Chase, Owner & President, Chase Plastics



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