

Makrolon® 2807

Bayer MaterialScience LLC - Polycarbonate

General Information

General	
Material Status	<ul style="list-style-type: none"> Commercial: Active
Availability	<ul style="list-style-type: none"> North America
Test Standards Available	<ul style="list-style-type: none"> ASTM ISO 10350
Features	<ul style="list-style-type: none"> Dimensional Stability, Good Impact Resistance, Good Mold Release, Good Thermal Stability, Good UV Resistance, Good
Uses	<ul style="list-style-type: none"> Appliances Automotive Applications Containers, Food Film Housings Lighting Diffusers Optical Applications Packaging Sporting Goods
Appearance	<ul style="list-style-type: none"> Transparent
Forms	<ul style="list-style-type: none"> Pellets
Processing Method	<ul style="list-style-type: none"> Injection Molding
Multi-Point Data	<ul style="list-style-type: none"> Creep Modulus vs. Time (ISO 11403-1) Isochronous Stress vs. Strain (ISO 11403-1) Viscosity vs. Shear Rate (ISO 11403-2)

ASTM and ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density -Specific Gravity	1.20	sp gr 23/23°C	ASTM D792
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10.0	g/10 min	ASTM D1238
Mold Shrink, Linear-Flow	0.0060 to 0.0080	in/in	ASTM D955
Water Absorption @ 24 hrs	0.15	%	ASTM D570
Water Absorption @ Sat.	0.35	%	ASTM D570
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	350000	psi	ASTM D638
Tensile Strength @ Yield	9100	psi	ASTM D638
Tensile Strength @ Break	10500	psi	ASTM D638
Tensile Elongation @ Yld	6.0	%	ASTM D638
Tensile Elongation @ Brk	120	%	ASTM D638
Flexural Modulus	330000	psi	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
(0.125 in)	17.0	ft-lb/in	
(0.250 in)	2.20	ft-lb/in	
Tensile Impact Strength (0.125 in)	275	ft-lb/in ²	ASTM D1822
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
(M-Scale)	75		
(R-Scale)	118		
Thermal	Nominal Value	Unit	Test Method
DTUL @66psi - Unannealed	280	°F	ASTM D648
DTUL @264psi - Unannealed	268	°F	ASTM D648
Vicat Softening Point	315	°F	ASTM D1525
CLTE, Flow	0.000039	in/in/°F	ASTM D696
Thermal Conductivity	1.4	Btu-in/hr/ft ² /°F	ASTM C177
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	1.0E+15	ohms	ASTM D257
Volume Resistivity	1.0E+16	ohm-cm	ASTM D257
Dielectric Strength	400	V/mil	ASTM D149
Dielectric Constant			ASTM D150
(60 Hz)	3.000		
(1E+6 Hz)	2.900		
Dissipation Factor			ASTM D150
(60 Hz)	0.00090		

(1E+6 Hz)	0.0100	
Arc Resistance (0.0625 in)	120 sec	ASTM D495
Flammability	Nominal Value Unit	Test Method
Flame Rating - UL		UL 94
(0.0625 in)	V-2	
(0.125 in)	V-2	
(0.250 in)	V-0	
Limiting Oxygen Index	26 %	ASTM D2863
Optical	Nominal Value Unit	Test Method
Refractive Index	1.586	ASTM D542
Haze	1.0 %	ASTM D1003

CAMPUS® Properties ²

Rheological properties	Nominal Value Unit	Test Method
Melt volume-flow rate (300°C/1.2 kg)	0.580 in ³ /10min	ISO 1133
Mechanical properties 23°C/50%r.h.	Nominal Value Unit	Test Method
Tensile modulus	348000 psi	ISO 527-1, -2
Yield stress	9430 psi	ISO 527-1, -2
Yield strain	6.0 %	ISO 527-1, -2
Nominal strain at break	> 50.0 %	ISO 527-1, -2
Tensile creep modulus (1h)	319000 psi	ISO 899-1
Tensile creep modulus (1000h)	276000 psi	ISO 899-1
Charpy impact strength (+23°C)	No Break ft-lb/in ²	ISO 179 /1eU
Charpy impact strength (-30°C)	No Break ft-lb/in ²	ISO 179 /1eU
Puncture - maximum force (+23°C)	1210 lbf	ISO 6603-2
Puncture - maximum force (-30°C)	1440 lbf	ISO 6603-2
Puncture energy (+23°C)	44.3 ft-lb	ISO 6603-2
Puncture energy (-30°C)	47.9 ft-lb	ISO 6603-2
Thermal properties	Nominal Value Unit	Test Method
Glass transition temperature (10°C/min)	300 °F	ISO 11357-1, -2
Temp. of deflection under load (1.80 MPa)	257 °F	ISO 75-1, -2
Temp. of deflection under load (0.45 MPa)	279 °F	ISO 75-1, -2
Vicat softening temperature (50°C/h 50N)	291 °F	ISO 306
Coeff. of linear therm. expansion (parallel)	0.000033 in/in/°F	ISO 11359-1, -2
Coeff. of linear therm. expansion (normal)	0.000033 in/in/°F	ISO 11359-1, -2
Burning Behav. at 1.6mm nom. thicken. (0.06 in, UL)	V-2	ISO 1210
Burning Behav. at thickness h (0.0984 in, UL)	HB	ISO 1210
Oxygen index	28 %	ISO 4589-1, -2
Electrical properties 23°C/50%r.h.	Nominal Value Unit	Test Method
Relative permittivity (100 Hz)	3.10	IEC 60250
Relative permittivity (1 MHz)	3.00	IEC 60250
Dissipation factor (100 Hz)	0.00050	IEC 60250
Dissipation factor (1 MHz)	0.0090	IEC 60250
Volume resistivity	> 3.9E+14 ohm-in	IEC 60093
Surface resistivity	> 1.0E+15 ohms	IEC 60093
Electric strength	810 V/mil	IEC 60243-1
Comparative tracking index	275	IEC 60112
Other properties	Nominal Value Unit	Test Method
Water absorption	0.30 %	ISO 62
Humidity absorption	0.12 %	ISO 62
Density	0.0434 lb/in ³	ISO 1183
Material specific properties	Nominal Value Unit	Test Method
Viscosity number	59.0 cm ³ /g	ISO 307, 1157, 1628
Test specimen production	Nominal Value Unit	Test Method
Processing conditions acc. ISO	ISO 7391-2	
Injection Molding, melt temperature	572 °F	ISO 294
Injection Molding, mold temperature	176 °F	ISO 10724
Injection Molding, injection velocity	8 in/sec	ISO 294

Processing Information

Injection	Nominal Value Unit
Drying Temperature	250 °F
Drying Time	4.0 hr
Suggested Max Moisture	0.020 %
Suggested Max Re grind	20 %
Rear Temperature	500 to 540 °F
Middle Temperature	510 to 550 °F

Front Temperature	555 to 595 °F
Nozzle Temperature	535 to 595 °F
Processing (Melt) Temp	560 to 590 °F
Mold Temperature	150 to 220 °F
Injection Pressure	10000 to 20000 psi
Back Pressure	50.0 to 100 psi
Screw Speed	50 to 75 rpm
Clamp Tonnage	3.0 to 5.0 tons/in ²
Screw L/D Ratio	20.0:1.0
Screw Compression Ratio	2.0:1.0 to 3.0:1.0

Notes

- 1 Typical properties: these are not to be construed as specifications.
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