

Bayer MaterialScience AG Makrolon® 2805 Polycarbonate, Injection Grade

Subcategory: Polycarbonate; Polymer; Thermoplastic

Key Words: PC

Material Notes:

Medium flowing injection molding grade with easy mold release, Makrolon grade 2858 for food contact applications.

Information provided by Bayer.

Physical Properties	Metric	English	Comments
Density	1.2 g/cc	0.0434 lb/in ³	
Water Absorption	0.35 %	0.35 %	Saturation in water
Moisture Absorption at Equilibrium	0.15 %	0.15 %	Equilibrium at 50% RH
Water Absorption at Saturation	0.35 %	0.35 %	
Linear Mold Shrinkage	0.006 - 0.008 cm/cm	0.006 - 0.008 in/in	ASTM D955
Melt Flow	9.5 g/10 min	9.5 g/10 min	300°C/1.2kg
Mechanical Properties			
Hardness, Rockwell M	75	75	ASTM D785
Hardness, Rockwell R	118	118	ASTM D785
Tensile Strength, Ultimate	72 MPa	10400 psi	ASTM D638
Tensile Strength, Yield	63 MPa	9140 psi	
Elongation at Break	120 %	120 %	ASTM D638
Elongation at Yield	6 %	6 %	
Tensile Modulus	2.4 GPa	348 ksi	
Flexural Modulus	2.3 GPa	334 ksi	ASTM D790
Flexural Yield Strength	86 MPa	12500 psi	at 5% strain; ASTM D790
Izod Impact, Notched	9.1 J/cm	17 ft-lb/in	3.2 mm thickness, ASTM D256
Charpy Impact, Unnotched	NB	NB	
Tensile Creep Modulus, 1 hour	2200 MPa	319000 psi	
Tensile Creep Modulus, 1000 hours	1900 MPa	276000 psi	
Electrical Properties			
Electrical Resistivity	Min 1e+015 ohm-cm	Min 1e+015 ohm-cm	
Surface Resistance	1e+015 ohm	1e+015 ohm	
Dielectric Constant	2.9	2.9	1 MHz
Dielectric Constant, Low Frequency	3	3	100 Hz
Dielectric Strength	30 kV/mm	762 kV/in	
Dissipation Factor	0.01	0.01	1 MHz
Dissipation Factor, Low Frequency	0.001	0.001	100 Hz

Arc Resistance	120 sec	120 sec	Tungsten Electrodes; ASTM D495
Comparative Tracking Index	275 V	275 V	
Hot Wire Ignition, HWI	30 - 60 sec	30 - 60 sec	UL Rating PLC 2 (30-60 sec) at 3 mm.
High Amp Arc Ignition, HAI	Min 120 arcs	Min 120 arcs	UL Rating PLC 0 (>120 arcs) at 1.5 mm.
High Voltage Arc-Tracking Rate, HVTR	25.4 - 80 mm/min	1 - 3.15 in/min	UL Rating PLC 2 (25.4-80 mm/min.) at 1.5 mm.

Thermal Properties

CTE, linear 20°C	70 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	in flow direction
CTE, linear 20°C Transverse to Flow	70 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
Specific Heat Capacity	1.17 J/g $\cdot^\circ\text{C}$	0.28 BTU/lb $\cdot^\circ\text{F}$	ASTM D2766
Thermal Conductivity	0.2 W/m-K	1.39 BTU-in/hr-ft $^2\cdot^\circ\text{F}$	ASTM C177
Maximum Service Temperature, Air	129 °C	264 °F	Deflection temperature at 1.8 MPa
Deflection Temperature at 0.46 MPa (66 psi)	136 °C	277 °F	
Deflection Temperature at 1.8 MPa (264 psi)	129 °C	264 °F	
Vicat Softening Point	145 °C	293 °F	
Glass Temperature	148 °C	298 °F	
UL RTI, Electrical	125 °C	257 °F	1.5 mm thickness
UL RTI, Mechanical with Impact	115 °C	239 °F	1.5 mm thickness
UL RTI, Mechanical without Impact	125 °C	257 °F	2 mm thickness
Flammability, UL94	V-2	V-2	2.4 mm
Flammability, UL94	V-2	V-2	1.6 mm
Oxygen Index	26 %	26 %	

Optical Properties

Refractive Index	1.586	1.586	
Haze	1 %	1 %	at 3.2 mm; ASTM D1003
Transmission, Visible	88 %	88 %	3.2 mm (0.13 in.) thickness; ASTM D1003

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