

Makrolon AL2647

Speciality grades / Automotive lighting

Global grade; MFR 13 g/10 min; Automotive lenses; Medium viscosity; UV stabilized; Easy release; Injection molding; Available in transparent colors only; Headlamp lenses for automotive forward lighting

ISO Shortname

ISO 7391-PC,MLR,55-18-9

Property	Test Condition	Unit	Standard	Value
Rheological properties				
Melt flow rate	300 °C / 1.2 kg	g/(10 min)	ASTM D 1238	13
Mold shrinkage, flow/cross to flow		in/in	ASTM D 955	0.006-0.008
Mechanical properties (23 °C/50 % r.h.)				
Tensile modulus	1 mm/min	lb/in ²	ASTM D 638	350000
Tensile stress at yield	-	lb/in ²	ASTM D 638	9400
Tensile elongation at yield	-	%	ASTM D 638	6.0
Tensile elongation at break	-	%	ASTM D 638	115
Tensile stress at break	-	lb/in ²	ASTM D 638	9400
Izod notched impact strength	73 °F, 0.125 in	ft-lb/in	ASTM D 256	16
Flexural modulus	-	lb/in ²	ASTM D 790	340000
Flexural stress at 5 % strain		lb/in ²	ASTM D 790	12500
Rockwell hardness		M Scale	ASTM D 785	75
Rockwell hardness		R Scale	ASTM D 785	120
Thermal properties				
Deflection temperature under load, Unannealed	264 psi; 0.250 in	°F	ASTM D 648	264
Deflection temperature under load, Unannealed	66 psi; 0.250 in	°F	ASTM D 648	275
Vicat softening temperature	50 N, 50 °C/h	°F	ASTM D 1525	289
Coefficient of linear thermal expansion, flow/cross-flow		in/in/°F	ASTM D 696	3.34E-05
UL94 Flame Class	Thickness tested: 1.5 mm	Class	UL 94	V-2
UL94 Flame Class	Thickness tested: 3.0 mm	Class	UL 94	HB
Oxygen index		%	ASTM D 2863	28
Thermal conductivity		Btu*in/(h*ft ² *°F)	ASTM C 177	1.39
Specific heat		Btu/(lb*°F)	ASTM D 2766	0.28
Electrical properties (23 °C/50 % r.h.)				
Dissipation factor, Tinfoil electrodes	60 Hz	-	ASTM D 150	0.0009
Dissipation factor, Tinfoil electrodes	1 MHz	-	ASTM D 150	0.01
Dielectric constant, Tinfoil electrodes	60 Hz	-	ASTM D 150	3.0
Dielectric constant, Tinfoil electrodes	1 MHz	-	ASTM D 150	2.9
Volume resistivity, Tinfoil electrodes		Ohm-m	ASTM D 257	1.0 E+14
Surface resistivity		Ohm	ASTM D 257	1.0 E+16
Dielectric strength	Short time under oil at 73 °F; 0.162 in	V/mil	ASTM D 149	810
Other properties (23 °C)				
Water absorption	73 °F; immersion to saturation	%	ASTM D 570	0.3
Water absorption	73 °F; immersion 24 h	%	ASTM D 570	0.12
Density		lb/in ³	ASTM D 792	0.043
Specific volume		in ³ /lb	ASTM D 792	23.1
Specific gravity		-	ASTM D 792	1.2
Material specific properties				
Refractive index		-	ASTM D 542	1.587
Luminous transmittance (clear transparent materials)	0.125 in	%	ASTM D 1003	87
Haze for transparent materials	0.125 in	%	ASTM D 1003	< 0.5

