Makrolon® AL2447 MAS181

Grades / Automotive lighting	MVR (300 °C/1.2 kg) 19 cm³/10 min; Automotive lighting; low viscosity; UV stabilized; easy release; improved static behavior; injection molding - melt temperature 280 - 320 °C; available in clear transparent colors; headlamp lenses for automotive forward lighting
ISO Shortname	PC

	Property	Test Condition	Unit	Standard	typical Value
Rheological properties					
C	Melt volume-flow rate	300 °C/ 1.2 kg	cm³/10 min	ISO 1133	19
Mechanical properties (23 °C/50 % r. h.)					
C	Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2400
C	Yield stress	50 mm/min	MPa	ISO 527-1,-2	66
C	Yield strain	50 mm/min	%	ISO 527-1,-2	6.0
C	Nominal strain at break	50 mm/min	%	ISO 527-1,-2	> 50
	Stress at break	50 mm/min	MPa	ISO 527-1,-2	65
	Strain at break	50 mm/min	%	b.o. ISO 527-1,-2	120
C	Charpy impact strength	23 °C	kJ/m²	ISO 179/1eU	N
	Izod notched impact strength	23 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	65P
C	Puncture impact properties - maximum force	23 °C	N	ISO 6603-2	5100
C	Puncture energy	23 °C	J	ISO 6603-2	55
Thermal properties					
C	Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	125
C	Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	138
C	Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	144
C	Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.65
C	Coefficient of linear thermal expansion, normal	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.65
C	Burning behavior UL 94 [UL recognition]	0.75 mm	Class	UL 94	V-2
C	Oxygen index	Method A	%	ISO 4589-2	28
Other properties (23 °C)					
C	Density		kg/m³	ISO 1183-1	1200
Material specific properties					
	Luminous transmittance (clear transparent materials)	3 mm	%	ISO 13468-2	88
Processing conditions for test specimens					
C	Injection molding - Melt temperature		°C	ISO 294	280
C	Injection molding - Mold temperature		°C	ISO 294	80
C	Injection molding - Injection velocity		mm/s	ISO 294	200

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	Property	Test Condition	Unit	Standard	typical Value
Recommended processing and drying conditions					
	Melt temperatures		°C	-	280 - 320
	Standard Melt temperature		°C	-	300
	Barrel Temperatures - Rear		°C	-	250 - 260
	Barrel Temperatures - Middle		°C	-	270 - 280
	Barrel Temperatures - Front		°C	-	280 - 290
	Barrel Temperatures - Nozzle		°C	-	290 - 300
	Mold Temperatures		°C	-	80 - 120
	Hold Pressure (% of injection pressure)		%	-	50 - 75
	Plastic Back Pressure (specific)		bar	-	50 - 150
	Peripheral Screw Speed		m/s	-	0.05 - 0.2
	Shot-to-Cylinder Size		%	-	30 - 70
	Dry Air Drying Temperature		°C	-	120
	Dry Air Drying Time		h	-	2-3
	Moisture Content max. (%)		%	-	<= 0,02
	Vent Depth		mm	-	0.025 - 0.075

C These property characteristics are taken from the CAMPUS plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350.

Impact properties: N = non-break, P = partial break, C = complete break