



Makrolon® 1248

Food contact grades / Medium viscosity

MVR (300 °C/1.2 kg) 7.0 cm³/10 min; food contact quality; medium viscosity; impact modified; injection molding - melt temperature 280 - 320 °C; available in light colors only

ISO Shortname

PC-I

Property	Test Condition	Unit	Standard	typical Value
Rheological properties				
C Melt volume-flow rate	300 °C/ 1.2 kg	cm³/10 min	ISO 1133	7.0
Melt mass-flow rate	300 °C/ 1.2 kg	g/10 min	ISO 1133	7.5
C Molding shrinkage, parallel	60x60x2 mm/ 500 bar	%	ISO 294-4	0.75
C Molding shrinkage, normal	60x60x2 mm/ 500 bar	%	ISO 294-4	0.8
Molding shrinkage, parallel/normal	Value range based on general practical experience	%	b.o. ISO 2577	0.6 - 0.8
Mechanical properties (23 °C/50 % r. h.)				
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2250
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	61
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	70
Strain at break	50 mm/min	%	b.o. ISO 527-1,-2	130
Flexural modulus	2 mm/min	MPa	ISO 178	2250
Flexural strength	2 mm/min	MPa	ISO 178	88
Flexural strain at flexural strength	2 mm/min	%	ISO 178	6.8
Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	68
C Charpy impact strength	23 °C	kJ/m²	ISO 179/1eU	N
Charpy impact strength	-60 °C	kJ/m²	ISO 179/1eU	N
Charpy notched impact strength	23 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 179/1eA	70P
Charpy notched impact strength	-30 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 179/1eA	60P(C)
Izod notched impact strength	23 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	65P
Izod notched impact strength	-30 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	30C(P)
C Puncture impact properties - maximum force	23 °C	N	ISO 6603-2	5200
C Puncture impact properties - maximum force	-30 °C	N	ISO 6603-2	6100
C Puncture energy	23 °C	J	ISO 6603-2	55
C Puncture energy	-30 °C	J	ISO 6603-2	60
Ball indentation hardness		N/mm²	ISO 2039-1	108



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Thermal properties				
C Glass transition temperature	10 °C/min	°C	ISO 11357-1,-2	148
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	139
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	146
Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	148
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.7
C Coefficient of linear thermal expansion, normal	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.7
C Burning behavior UL 94 (1.5 mm)	1.5 mm	Class	UL 94	HB
C Oxygen index	Method A	%	ISO 4589-2	30
Thermal conductivity, through-plane	23 °C; 50 % r. h.	W/(m·K)	ISO 8302	0.20
Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	138
Halving interval (Tensile strength)	1.0 mm	°C	IEC 60216-1	45
Temperature index (Tensile impact strength)	20000 h/ 1.0 mm	°C	IEC 60216-1	455
Glow wire test (GWFI)	0.75 mm	°C	IEC 60695-2-12	850
Glow wire test (GWFI)	1.5 mm	°C	IEC 60695-2-12	850
Glow wire test (GWFI)	3.0 mm	°C	IEC 60695-2-12	900
Glow wire test (GWIT)	0.75 mm	°C	IEC 60695-2-13	800
Glow wire test (GWIT)	1.5 mm	°C	IEC 60695-2-13	875
Glow wire test (GWIT)	3.0 mm	°C	IEC 60695-2-13	875
Needle flame test	Method K/ 2.0 mm	s	IEC 60695-11-5	5
Needle flame test	Method K/ 3.0 mm	s	IEC 60695-11-5	10
Needle flame test	Method F/ 1.5 mm	s	IEC 60695-11-5	60
Needle flame test	Method F/ 2.0 mm	s	IEC 60695-11-5	60
Needle flame test	Method F/ 3.0 mm	s	IEC 60695-11-5	120
Burning rate (US-FMVSS)	>=1.0 mm	mm/min	ISO 3795	passed
Flash ignition temperature		°C	ASTM D1929	430
Self ignition temperature		°C	ASTM D1929	540
Electrical properties (23 °C/50 % r. h.)				
C Relative permittivity	100 Hz	-	IEC 60250	3.1
C Relative permittivity	1 MHz	-	IEC 60250	3.0
C Dissipation factor	100 Hz	10 ⁻⁴	IEC 60250	12
C Dissipation factor	1 MHz	10 ⁻⁴	IEC 60250	120
C Volume resistivity		Ohm·m	IEC 60093	1E14
C Surface resistivity		Ohm	IEC 60093	1E16
C Electrical strength	1 mm	kV/mm	IEC 60243-1	34
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	225
Comparative tracking index CTI M	Solution B	Rating	IEC 60112	125M
Electrolytic corrosion		Rating	IEC 60426	A1
Other properties (23 °C)				
C Water absorption (saturation value)	Water at 23 °C	%	ISO 62	0.40
C Water absorption (equilibrium value)	23 °C; 50 % r. h.	%	ISO 62	0.12
C Density		kg/m³	ISO 1183-1	1200
Bulk density	Pellets	kg/m³	ISO 60	640
Material specific properties				
Refractive index	Procedure A	-	ISO 489	1.586
Luminous transmittance (clear transparent materials)	1 mm	%	ISO 13468-2	89
C Luminous transmittance (clear transparent materials)	2 mm	%	ISO 13468-2	89
Luminous transmittance (clear transparent materials)	3 mm	%	ISO 13468-2	88





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Processing conditions for test specimens				
C Injection molding - Melt temperature		°C	ISO 294	300
C Injection molding - Mold temperature		°C	ISO 294	80
C Injection molding - Injection velocity		mm/s	ISO 294	200
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

