

Makrolon® TC110 FR

/ moderate thermal conductivity; MVR (300 °C/1.2 kg) 5.0 cm³/10 min; high viscosity; flame retardant
ISO Shortname PC-(TD25+MD5) FR

Property	Test Condition	Unit	Standard	typical Value
Rheological properties				
C Melt volume-flow rate	300 °C/ 1.2 kg	cm³/10 min	ISO 1133	5
C Melt viscosity	1000 s⁻¹/ 300 °C	Pa·s	b.o. ISO 11443-A	160
C Molding shrinkage, parallel	60x60x2 mm	%	ISO 294-4	0.3 - 0.4
Mechanical properties (23 °C/50 % r. h.)				
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	6000
C Yield stress	5 mm/min	MPa	ISO 527-1,-2	52
C Yield strain	5 mm/min	%	ISO 527-1,-2	3
C Nominal strain at break	5 mm/min	%	ISO 527-1,-2	4.3
C Strain at break	5 mm/min	%	ISO 527-1,-2	52
C Flexural modulus	2 mm/min	MPa	ISO 178	6000
C Flexural strength	2 mm/min	MPa	ISO 178	97
C Flexural strain at flexural strength	2 mm/min	%	ISO 178	4
C Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	95
C Charpy impact strength	23 °C	kJ/m²	ISO 179/1eU	90 C
C Puncture impact properties - maximum force	23 °C	N	ISO 6603-2	3200
C Puncture energy	23 °C	J	ISO 6603-2	10
Thermal properties				
C Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	132
C Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	143
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	145
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10⁻⁴/K	ISO 11359-1,-2	0.36
C Coefficient of linear thermal expansion, normal	23 to 55 °C	10⁻⁴/K	ISO 11359-1,-2	0.54
C Burning behavior UL 94	1.5 mm	Class	UL 94	V0
C Thermal conductivity, through-plane	23 °C; 50 % r. h.	W/(m·K)	ASTM E1461	0.2
C Thermal conductivity, in-plane	23 °C; 50 % r. h.	W/(m·K)	ASTM E1461	0.8
Electrical properties (23 °C/50 % r. h.)				
C Volume resistivity		Ohm·m	IEC 60093	>=E+15
C Surface resistivity		Ohm	IEC 60093	>=E+15
C Electrical strength	1 mm	kV/mm	IEC 60243-1	39
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	275
Other properties (23 °C)				
C Density		kg/m³	ISO 1183-1	1450
Processing conditions for test specimens				
C Injection molding - Melt temperature		°C	ISO 294	280
C Injection molding - Mold temperature		°C	ISO 294	90
Recommended processing and drying conditions				
C Dry Air Drying Temperature		°C	-	120
C Dry Air Drying Time		h	-	4

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

