Makrolon® M6011 FR

/	medium viscosity; impact modified; UV stabilized; flame retardant; improved chemical resistance compared to standard Makrolon grades; tested only according to ISO 10993-5 and ISO 10993-10 for contact with uncompromised skin only; available in opaque colors only; electrical/electronic; housing parts
ISO Shortname	PC-I FR(40)

	Property	Test Condition	Unit	Standard	typical Value
Rheological properties					
C	Melt volume-flow rate	300 °C/ 5 kg	cm³/10 min	ISO 1133	25
	Melt volume-flow rate	300 °C/ 1.2 kg	cm³/10 min	ISO 1133	4
	Melt viscosity	1000 s^{-1}/ 300 °C	Pa·s	b.o. ISO 11443-A	320
	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	60
C	Yield strain	50 mm/min	%	ISO 527-1,-2	5.9
C	Nominal strain at break	50 mm/min	%	ISO 527-1,-2	>50
	Flexural modulus	2 mm/min	MPa	ISO 178	2250
	Flexural strength	2 mm/min	MPa	ISO 178	89
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	70 P
	Izod notched impact strength	-10 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	60 P
	Izod notched impact strength	-30 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	20 C
C	Puncture impact properties - maximum force	23 °C	N	ISO 6603-2	5000
C	Puncture impact properties - maximum force	-30 °C	N	ISO 6603-2	6200
C	Puncture energy	23 °C	J	ISO 6603-2	51
C	Puncture energy	-30 °C	J	ISO 6603-2	57
Thermal properties					
C	Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	115
C	Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	129
C	Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	136
	Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	138
C	Burning behavior UL 94	1.0 mm	Class	UL 94	V-1
C	Burning behavior UL 94	1.5 mm	Class	UL 94	V-0
	Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	125
	Glow wire test (GWFI)	1.0 mm	°C	IEC 60695-2-12	960
	Glow wire test (GWFI)	1.5 mm	°C	IEC 60695-2-12	960
	Glow wire test (GWIT)	1.0 mm	°C	IEC 60695-2-13	875
	Glow wire test (GWIT)	1.5 mm	°C	IEC 60695-2-13	850
Other properties (23 °C)					
C	Water absorption (saturation value)	Water at 23 °C	%	ISO 62	0.36
C	Water absorption (equilibrium value)	23 °C; 50 % r. h.	%	ISO 62	0.12
C	Density		kg/m³	ISO 1183-1	1190
Processing conditions for test specimens					
C	Injection molding - Melt temperature		°C	ISO 294	300
C	Injection molding - Mold temperature		°C	ISO 294	90

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	Property	Test Condition	Unit	Standard	typical Value
Recommended processing and drying conditions					
	Dry Air Drying Temperature		°C	-	120
	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

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