

Makroblend® M4000 FR

/ (PC+PBT) Blend, injection molding grade, flame retardant, excellent chemical resistance. Manufactured according to GMP, tested only according to ISO 10993-5 and ISO 10993-10 for contact with uncompromised skin only; for questions regarding biocompatibility we ask for an email inquiry under plastics@covestro.com. Limited colorability: recommended for whites and light colors only.

ISO Shortname PC+PBT-FR(16)

Property	Test Condition	Unit	Standard	typical Value
Rheological properties				
C Melt volume-flow rate	260 °C/ 5 kg	cm ³ /10 min	ISO 1133	18
Melt viscosity	1000 s ⁻¹ / 260 °C	Pa·s	b.o. ISO 11443-A	305
Molding shrinkage, parallel/normal	Value range based on general practical experience (600bar)	%	b.o. ISO 2577	0.7 - 0.9
Mechanical properties (23 °C/50 % r. h.)				
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2300
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	56
C Yield strain	50 mm/min	%	ISO 527-1,-2	4.3
C Nominal strain at break	50 mm/min	%	ISO 527-1,-2	109
Flexural modulus	2 mm/min	MPa	ISO 178	2300
Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	75
Flexural strength	2 mm/min	MPa	ISO 178	86
Izod notched impact strength	23 °C	kJ/m ²	ISO 180/A	40
Izod notched impact strength	-30 °C	kJ/m ²	ISO 180/A	12
Ball indentation hardness		N/mm ²	ISO 2039-1	117
Thermal properties				
C Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	85
C Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	115
Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	130
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.8
C Coefficient of linear thermal expansion, normal	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.8
C Burning behavior UL 94 [UL recognition]	2.0 mm	Class	UL 94	V-0
C Burning behavior UL 94-5V [UL recognition]	3.0 mm	Class	UL 94	5VA
Thermal conductivity, through-plane	23 °C; 50 % r. h.	W/(m·K)	ISO 8302	0.2
Electrical properties (23 °C/50 % r. h.)				
C Relative permittivity	100 Hz	-	IEC 60250	3.4
C Relative permittivity	1 MHz	-	IEC 60250	3.2
C Dissipation factor	100 Hz	10 ⁻⁴	IEC 60250	20
C Dissipation factor	1 MHz	10 ⁻⁴	IEC 60250	200
C Volume resistivity		Ohm·m	IEC 60093	1E14
C Surface resistivity		Ohm	IEC 60093	1E15
C Electrical strength	1 mm	kV/mm	IEC 60243-1	46
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	225
Other properties (23 °C)				
C Water absorption (saturation value)	Water at 23 °C	%	ISO 62	0.4
C Water absorption (equilibrium value)	23 °C; 50 % r. h.	%	ISO 62	0.12
C Density		kg/m ³	ISO 1183-1	1340





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Property	Test Condition	Unit	Standard	typical Value
Recommended processing and drying conditions				
Melt temperatures		°C	-	250 - 270
Standard Melt temperature		°C	-	260
Barrel Temperatures - Rear		°C	-	245 - 255
Barrel Temperatures - Middle		°C	-	250 - 260
Barrel Temperatures - Front		°C	-	255 - 265
Barrel Temperatures - Nozzle		°C	-	255 - 270
Mold Temperatures		°C	-	60 - 100
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	-	110
Dry Air Drying Time		h	-	2-4
Moisture Content max. (%)		%	-	<= 0,01
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

