Makrolon® SF805

Grades / Structural foam

MVR (300 °C/1.2 kg) 7.0 cm³/10 min; structural foam; 5 % glass fiber reinforced; flame retardant; high viscosity; easy release; injection molding; available in natural (opaque) and opaque colors; in combination with an appropriate blowing agent for the production of structural foam moldings

ISO Shortname

ISO 7391-PC,MFR,(,,)-09-9,GF5

	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
C	Molding shrinkage, parallel	60x60x2 mm; 500 bar	%	ISO 294-4	0.7
C	Molding shrinkage, normal	60x60x2 mm; 500 bar	%	ISO 294-4	0.55
	Melt mass-flow rate	300 °C; 1.2 kg	g/10 min	ISO 1133	8.0
Mechanical properties (23 °C/50 % r. h.)					
C	Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2900
	Yield stress	5 mm/min	MPa	ISO 527-1,-2	62
	Yield strain	5 mm/min	%	ISO 527-1,-2	4.7
C	Stress at break	5 mm/min	MPa	ISO 527-1,-2	60
C	Strain at break	5 mm/min	%	ISO 527-1,-2	20
	Flexural modulus	2 mm/min	MPa	ISO 178	2900
	Flexural modulus	2 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	MPa	b.o. ISO 178	1800
	Flexural strength	2 mm/min	MPa	ISO 178	100
	Flexural strength	2 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	MPa	b.o. ISO 178	55
	Flexural strain at flexural strength	2 mm/min	%	ISO 178	6.0
	Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	85
	Flexural stress at 3.5 % strain	2 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	MPa	b.o. ISO 178	55
C	Charpy impact strength	23 °C	kJ/m²	ISO 179-1eU	190C
	Charpy impact strength	-20 °C	kJ/m²	ISO 179-1eU	160C
C	Charpy impact strength	-30 °C	kJ/m²	ISO 179-1eU	140C
	Charpy impact strength	-60 °C	kJ/m²	ISO 179-1eU	90C
	Charpy notched impact strength	23 °C; 3 mm	kJ/m²	ISO 7391/b.o. ISO 179-1eA	15C
	Izod notched impact strength	23 °C; 3 mm	kJ/m²	ISO 7391/b.o. ISO 180-A	12C
C	Puncture maximum force	23 °C	N	ISO 6603-2	4300
C	Puncture maximum force	-30 °C	N	ISO 6603-2	4900
C	Puncture energy	23 °C	J	ISO 6603-2	30
C	Puncture energy	-30 °C	J	ISO 6603-2	25
	Ball indentation hardness		N/mm²	ISO 2039-1	119
	Tensile modulus	1 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	MPa	b.o. ISO 527-1,-2	1800
	Stress at break	5 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	MPa	b.o. ISO 527-1,-2	35
	Strain at break	5 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	%	b.o. ISO 527-1,-2	6.0
	Flexural strain at flexural strength	2 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	MPa	b.o. ISO 178	5.0
	Charpy impact strength	23 °C; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	kJ/m²	b.o. ISO 179-1eU	25C
	Charpy impact strength	-20 °C; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	kJ/m²	b.o. ISO 179-1eU	25C
	Ball indentation hardness	Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	N/mm²	b.o. ISO 2039-1	50

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	Property	Test Condition	Unit	Standard	typical Value
Thermal properties					
C	Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	130
C	Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	140
C	Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	143
C	Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.55
C	Coefficient of linear thermal expansion, transverse	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.7
C	Burning behavior UL 94 [UL recognition]	3.0 mm	Class	UL 94	V-0 (GY)
	Burning behavior UL 94-5V [UL recognition]	5.0 mm	Class	UL 94	5VA (GY)
C	Oxygen index	Method A	%	ISO 4589-2	32
	Thermal conductivity, cross-flow	23 °C; 50 % r. h.	W/(m·K)	ISO 8302	0.22
	Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	136
	Relative temperature index (Tensile strength) [UL recognition]	3.0 mm	°C	UL 746B	80
	Relative temperature index (Tensile impact strength) [UL recognition]	3.0 mm	°C	UL 746B	80
	Relative temperature index (Electric strength) [UL recognition]	3.0 mm	°C	UL 746B	80
	Glow wire test (GWFI)	1.0 mm	°C	IEC 60695-2-12	850
	Glow wire test (GWFI)	1.5 mm	°C	IEC 60695-2-12	960
	Glow wire test (GWFI)	3.0 mm	°C	IEC 60695-2-12	960
	Glow wire test (GWFI)	4.0 mm	°C	IEC 60695-2-12	960
	Glow wire test (GWIT)	0.8 mm	°C	IEC 60695-2-13	825
	Glow wire test (GWIT)	1.5 mm	°C	IEC 60695-2-13	825
	Glow wire test (GWIT)	3.0 mm	°C	IEC 60695-2-13	825
	Temperature of deflection under load	1.80 MPa; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	°C	b.o. ISO 75-1,-2	125
	Temperature of deflection under load	0.45 MPa; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	°C	b.o. ISO 75-1,-2	133
	Vicat softening temperature	50 N; 50 °C/h; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	°C	b.o. ISO 306	132
	Burning behavior UL 94 [UL recognition]	Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	Class	UL 94	V-0 (GY)
	Burning behavior UL 94-5V [UL recognition]	Foamed 6.0 mm; density in the foamed state 900-1000 kg/m³	Class	UL 94	5VA (GY)
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	8
C	Dissipation factor	1 MHz	10^{-4}	IEC 60250	90
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	175
	Comparative tracking index CTI M	Solution B	Rating	IEC 60112	125M
Other properties (23 °C)					
C	Water absorption (saturation value)	Water at 23 °C	%	ISO 62	0.30
C	Water absorption (equilibrium value)	23 °C; 50 % r. h.	%	ISO 62	0.10
C	Density		kg/m³	ISO 1183-1	1230
	Glass fiber content	Method A	%	b.o. ISO 3451-1	5
	Bulk density	Pellets	kg/m³	ISO 60	650

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	Property	Test Condition	Unit	Standard	typical Value
Processing conditions for test specimens					
C	Injection molding-Melt temperature		°C	ISO 294	300
C	Injection molding-Mold temperature		°C	ISO 294	110
C	Injection molding-Injection velocity		mm/s	ISO 294	200

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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Disclaimer

Typical value

These values are typical values only. Unless explicitly agreed in written form, the do not constitute a binding material specification or warranted values. Values may be affected by the design of the mold/die, the processing conditions and coloring/pigmentation of the product. Unless specified to the contrary, the property values given have been established on standardized test specimens at room temperature.

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