

# Makrolon® SF805

## Grades / Structural foam

MVR (300 °C/1.2 kg) 7.0 cm<sup>3</sup>/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
<b>Rheological properties</b>				
C Melt volume-flow rate	300 °C; 1.2 kg	cm <sup>3</sup> /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
C Melt mass-flow rate	300 °C; 1.2 kg	g/10 min	ISO 1133	8.0
<b>Mechanical properties (23 °C/50 % r. h.)</b>				
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/m <sup>3</sup>	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/m <sup>3</sup>	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/m <sup>3</sup>	MPa	b.o. ISO 178	55
C Charpy impact strength	23 °C	kJ/m <sup>2</sup>	ISO 179-1eU	190C
Charpy impact strength	-20 °C	kJ/m <sup>2</sup>	ISO 179-1eU	160C
C Charpy impact strength	-30 °C	kJ/m <sup>2</sup>	ISO 179-1eU	140C
Charpy impact strength	-60 °C	kJ/m <sup>2</sup>	ISO 179-1eU	90C
Charpy notched impact strength	23 °C; 3 mm	kJ/m <sup>2</sup>	ISO 7391/b.o. ISO 179-1eA	15C
Izod notched impact strength	23 °C; 3 mm	kJ/m <sup>2</sup>	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/mm <sup>2</sup>	ISO 2039-1	119
Tensile modulus	1 mm/min; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	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/m <sup>3</sup>	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/m <sup>3</sup>	%	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/m <sup>3</sup>	MPa	b.o. ISO 178	5.0
Charpy impact strength	23 °C; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	kJ/m <sup>2</sup>	b.o. ISO 179-1eU	25C
Charpy impact strength	-20 °C; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	kJ/m <sup>2</sup>	b.o. ISO 179-1eU	25C
Ball indentation hardness	Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	N/mm <sup>2</sup>	b.o. ISO 2039-1	50

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Property	Test Condition	Unit	Standard	typical Value
<b>Thermal properties</b>				
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 <sup>-4</sup> /K	ISO 11359-1,-2	0.55
C Coefficient of linear thermal expansion, transverse	23 to 55 °C	10 <sup>-4</sup> /K	ISO 11359-1,-2	0.7
C Burning behavior UL 94 [UL recognition]	3.0 mm	Class	UL 94	V-0 (GY)
C Burning behavior UL 94-5V [UL recognition]	5.0 mm	Class	UL 94	5VA (GY)
C Oxygen index	Method A	%	ISO 4589-2	32
C Thermal conductivity, cross-flow	23 °C; 50 % r. h.	W/(m·K)	ISO 8302	0.22
C Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	136
C Relative temperature index (Tensile strength) [UL recognition]	3.0 mm	°C	UL 746B	80
C Relative temperature index (Tensile impact strength) [UL recognition]	3.0 mm	°C	UL 746B	80
C Relative temperature index (Electric strength) [UL recognition]	3.0 mm	°C	UL 746B	80
C Glow wire test (GWFI)	1.0 mm	°C	IEC 60695-2-12	850
C Glow wire test (GWFI)	1.5 mm	°C	IEC 60695-2-12	960
C Glow wire test (GWFI)	3.0 mm	°C	IEC 60695-2-12	960
C Glow wire test (GWFI)	4.0 mm	°C	IEC 60695-2-12	960
C Glow wire test (GWIT)	0.8 mm	°C	IEC 60695-2-13	825
C Glow wire test (GWIT)	1.5 mm	°C	IEC 60695-2-13	825
C Glow wire test (GWIT)	3.0 mm	°C	IEC 60695-2-13	825
C Temperature of deflection under load	1.80 MPa; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	°C	b.o. ISO 75-1,-2	125
C Temperature of deflection under load	0.45 MPa; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	°C	b.o. ISO 75-1,-2	133
C Vicat softening temperature	50 N; 50 °C/h; Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	°C	b.o. ISO 306	132
C Coefficient of linear thermal expansion, transverse [UL recognition]	Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	Class	UL 94	V-0 (GY)
C Burning behavior UL 94-5V [UL recognition]	Foamed 6.0 mm; density in the foamed state 900-1000 kg/m <sup>3</sup>	Class	UL 94	5VA (GY)
<b>Electrical properties (23 °C/50 % r. h.)</b>				
C Relative permittivity	100 Hz	-	IEC 60250	3.1
C Relative permittivity	1 MHz	-	IEC 60250	3.0
C Dissipation factor	100 Hz	10 <sup>-4</sup>	IEC 60250	8
C Dissipation factor	1 MHz	10 <sup>-4</sup>	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
C Comparative tracking index CTI M	Solution B	Rating	IEC 60112	125M
<b>Other properties (23 °C)</b>				
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/m <sup>3</sup>	ISO 1183-1	1230
C Glass fiber content	Method A	%	b.o. ISO 3451-1	5
C Bulk density	Pellets	kg/m <sup>3</sup>	ISO 60	650

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Property	Test Condition	Unit	Standard	typical Value
<b>Processing conditions for test specimens</b>				
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, they 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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