

Makrolon® 9425

 Covestro - Polycarbonates - *Polycarbonate*
General Information
Product Description

 MVR (300°C/1.2 kg) 5.0 cm³/10 min; 20 % glass fiber reinforced; flame retardant; UL 94V-0/1.5 mm and 5VA/3.0 mm; high viscosity; easy release; injection molding - melt temperature 310 - 330°C; extrusion; available in opaque colors only

General

Material Status	• Commercial: Active
Availability	• Africa & Middle East • Europe • North America • Asia Pacific • Latin America
Filler / Reinforcement	• Glass Fiber, 20% Filler by Weight
Additive	• Flame Retardant
Features	• Flame Retardant • Good Mold Release • High Viscosity
RoHS Compliance	• RoHS Compliant
Automotive Specifications	• GM QK 006112 FR Color: 000000 Natural
Appearance	• Colors Available • Opaque
Processing Method	• Extrusion • Injection Molding
ISO Designation	• ISO 7391-PC,MFR,(,)-05-3,GF20

Properties ¹

Physical	Nominal Value	Unit	Test Method
Density (73°F)	1.34	g/cm ³	ISO 1183
Apparent (Bulk) Density ²	0.64	g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	6.0	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	5.0	cm ³ /10min	ISO 1133
Molding Shrinkage			
Across Flow	0.30 to 0.50	%	ISO 2577
Flow	0.30 to 0.50	%	ISO 2577
Across Flow : 536°F, 0.0787 in ³	0.45	%	ISO 294-4
Flow : 0.0787 in ³	0.35	%	ISO 294-4
Water Absorption (Saturation, 73°F)	0.24	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.10	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	841000	psi	ISO 527-1/1
Tensile Stress (Break, 73°F)	12500	psi	ISO 527-2/5
Tensile Strain (Break, 73°F)	2.6	%	ISO 527-2/5
Tensile Creep Modulus (1 hr)	827000	psi	ISO 899-1
Tensile Creep Modulus (1000 hr)	754000	psi	ISO 899-1
Flexural Modulus ⁴ (73°F)	798000	psi	ISO 178
Flexural Stress ⁴ (73°F)	19600	psi	ISO 178
Flexural Strain at Flexural Strength ⁵ (73°F)	3.5	%	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ⁶ (73°F, Complete Break)	3.8	ft·lb/in ²	ISO 179/1eA
Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F, Complete Break	24	ft·lb/in ²	
-22°F, Complete Break	24	ft·lb/in ²	
73°F, Complete Break	19	ft·lb/in ²	
Notched Izod Impact Strength ⁶ (73°F, Complete Break)	3.8	ft·lb/in ²	ISO 180/A
Multi-Axial Instrumented Impact Energy			ISO 6603-2



-22°F		3.69 ft·lb	
73°F		3.69 ft·lb	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F		202 lbf	
73°F		202 lbf	
Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness	21500	psi	ISO 2039-1
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	288	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	280	°F	ISO 75-2/A
Vicat Softening Temperature			
--	298	°F	ISO 306/B120
--	295	°F	ISO 306/B50
Ball Pressure Test (277°F)	Pass		IEC 60695-10-2
CLTE - Flow (73 to 131°F)	1.7E-5	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.6E-5	in/in/°F	ISO 11359-2
Thermal Conductivity ⁷ (73°F)	1.6	Btu·in/hr/ft ² /°F	ISO 8302
RTI Elec (0.06 in)	266	°F	UL 746B
RTI Imp (0.06 in)	257	°F	UL 746B
RTI Str (0.06 in)	257	°F	UL 746B
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	1.0E+16	ohms	IEC 60093
Volume Resistivity (73°F)	1.0E+16	ohms·cm	IEC 60093
Electric Strength (73°F, 0.0394 in)	910	V/mil	IEC 60243-1
Relative Permittivity			IEC 60250
73°F, 100 Hz	3.30		
73°F, 1 MHz	3.30		
Dissipation Factor			IEC 60250
73°F, 100 Hz	1.0E-3		
73°F, 1 MHz	9.0E-3		
Comparative Tracking Index			IEC 60112
Solution A	175	V	
Solution B	125	V	
Electrolytic Corrosion (73°F)	A1		IEC 60426
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.020 in	V-2		
0.06 in	V-0		
0.12 in	5VA		
Glow Wire Flammability Index			IEC 60695-2-12
0.030 in	1760	°F	
0.06 in	1760	°F	
0.12 in	1760	°F	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.030 in	1610	°F	
0.06 in	1610	°F	
0.12 in	1610	°F	
Oxygen Index ⁸	35	%	ISO 4589-2
Application of Flame from Small Burner			
78.7 mil ⁹	K1, F1		DIN 53438-1, -3
78.7 mil	B2		DIN 4102
Burning Rate ¹⁰ (> 39.4 mil)	passed		ISO 3795
Flash Ignition Temperature	878	°F	ASTM D1929
Needle Flame Test			IEC 60695-11-5
59.1 mil ¹¹	60	sec	
59.1 mil ¹²	120	sec	
	120	sec	
	120	sec	
	120	sec	

0.12 in ¹²	120 sec	
Self Ignition Temperature	1022 °F	ASTM D1929

Processing Information

Injection	Nominal Value	Unit
Drying Temperature - Dry Air Dryer	248	°F
Drying Time - Dry Air Dryer	2.0 to 3.0	hr
Suggested Max Moisture	< 0.020	%
Suggested Shot Size	30 to 70	%
Rear Temperature	482 to 500	°F
Middle Temperature	518 to 536	°F
Front Temperature	536 to 554	°F
Nozzle Temperature	554 to 572	°F
Processing (Melt) Temp	536 to 608	°F
Mold Temperature	176 to 248	°F
Back Pressure	725 to 2180	psi
Vent Depth	9.8E-4 to 3.0E-3	in

Injection Notes

Peripheral Screw Speed: 0.05 - 0.2 m/s
Standard Melt Temperature: 300°C
Hold Pressure (% of Injection Pressure): 50 - 75%

Notes

- ¹ Typical properties: these are not to be construed as specifications.
- ² Pellets
- ³ 60x60x2mm, 500 bar
- ⁴ 0.079 in/min
- ⁵ 2.0 mm/min
- ⁶ 3 mm
- ⁷ Across Flow
- ⁸ Procedure A
- ⁹ Method K and F
- ¹⁰ US-FMVSS
- ¹¹ Method K
- ¹² Method F

