Makrolon® 1095

Covestro - Polycarbonates - *Polycarbonate*

General Information

Product Description			
MVR (300°C/1.2 kg) 6.0 cm³/10 min; 15 % glass fiber reinforced; UL 94V-0/3.0 mm; high viscosity; easy release; injection molding - melt temperature 310 - 330°C; extrusion; available in opaque colors only; housings for power tools			
General			
Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Glass Fiber, 15% Filler by Weight		
Features	• Good Mold Release	• High Viscosity	
Uses	• Housings	• Power/Other Tools	
RoHS Compliance	• RoHS Compliant		
Appearance	• Colors Available	• Opaque	
Processing Method	• Extrusion	• Injection Molding	
ISO Designation	• ISO 7391-PC,MR,(,,)-09-9,GF15		

Properties [1]

Physical	**Nominal Value**	**Unit**	**Test Method**
Density (73°F)	1.29	g/cm³	ISO 1183
Apparent (Bulk) Density [2]	0.64	g/cm³	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	7.0	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	6.0	cm³/10min	ISO 1133
Molding Shrinkage [3]			ISO 294-4
Across Flow : 536°F, 0.0787 in	0.45	%	
Flow : 0.0787 in	0.45	%	
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)	667000	psi	ISO 527-1/1
Tensile Stress (Yield, 73°F)	9280	psi	ISO 527-2/5
Tensile Stress (Break, 73°F)	6530	psi	ISO 527-2/5
Tensile Strain (Yield, 73°F)	4.6	%	ISO 527-2/5
Tensile Strain (Break, 73°F)	12	%	ISO 527-2/5
Flexural Modulus [4] (73°F)	638000	psi	ISO 178
Flexural Stress [4]			ISO 178
73°F	15200	psi	
3.5% Strain, 73°F	13800	psi	
Flexural Strain at Flexural Strength [5] (73°F)	5.8	%	ISO 178
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength [6] (73°F, Complete Break)	4.8	ft·lb/in²	ISO 179/1eA
Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F, Complete Break	43	ft·lb/in²	
-22°F, Complete Break	48	ft·lb/in²	
73°F, Complete Break	57	ft·lb/in²	
Notched Izod Impact Strength [6] (73°F, Complete Break)	4.8	ft·lb/in²	ISO 180/A
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-22°F	9.59	ft·lb	

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73°F	18.4	ft·lb	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F	674	lbf	
73°F	809	lbf	
Hardness	**Nominal Value**	**Unit**	**Test Method**
Ball Indentation Hardness	18700	psi	ISO 2039-1
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load (66 psi, Unannealed)	286	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	275	°F	ISO 75-2/A
Vicat Softening Temperature			
--	293	°F	ISO 306/B120
--	288	°F	ISO 306/B50
Ball Pressure Test (277°F)	Pass		IEC 60695-10-2
CLTE - Flow (73 to 131°F)	1.9E-5	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.6E-5	in/in/°F	ISO 11359-2
RTI Elec (0.06 in)	176	°F	UL 746B
RTI Imp (0.06 in)	176	°F	UL 746B
RTI Str (0.06 in)	176	°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)	970	V/mil	IEC 60243-1
Relative Permittivity			IEC 60250
73°F, 100 Hz	3.20		
73°F, 1 MHz	3.20		
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
0.06 in	V-2		
0.12 in	V-0		
Glow Wire Flammability Index			IEC 60695-2-12
0.030 in	1560	°F	
0.06 in	1760	°F	
0.12 in	1760	°F	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.030 in	1560	°F	
0.06 in	1650	°F	
0.12 in	1650	°F	
Oxygen Index [7]	27	%	ISO 4589-2
Burning Rate [8] (> 39.4 mil)	passed		ISO 3795
Flash Ignition Temperature	878	°F	ASTM D1929
Needle Flame Test			IEC 60695-11-5
59.1 mil [9]	60	sec	
59.1 mil [10]	120	sec	
78.7 mil [9]	60	sec	
78.7 mil [10]	120	sec	
0.12 in [9]	120	sec	
0.12 in [10]	120	sec	
Self Ignition Temperature	1022	°F	ASTM D1929

Processing Information

	Nominal Valu
erature - Dry Air Dryer	24
- Dry Air Dryer	2.0 to 3.
lax Moisture	< 0.02

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Suggested Shot Size	30 to 70 %
Rear Temperature	500 to 518 °F
Middle Temperature	536 to 554 °F
Front Temperature	572 to 590 °F
Nozzle Temperature	590 to 608 °F
Processing (Melt) Temp	590 to 626 °F
Mold Temperature	176 to 266 °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
Hold Pressure (% of Injection Pressure): 50 - 75%
Standard Melt Temperature: 320°C

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] Procedure A

[8] US-FMVSS

[9] Method K

[10] Method F

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