Makrolon® 3638

Covestro - Polycarbonates - *Polycarbonate*

General Information

Product Description			
MVR (300 °C/1.2 kg) 2.0 cm³/10 min; high viscosity; food contact quality; biocompatible according tomany ISO 10993-1 test requirements; blow molding; injection molding; available in transparent colors only; pharmaceutical applications; medical devices			
General			
Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• Biocompatible	• Food Contact Acceptable	• High Viscosity
Uses	• Medical Devices	• Medical/Healthcare Applications	
Agency Ratings	• ISO 10993-1	• USP Class VI	
RoHS Compliance	• RoHS Compliant		
Appearance	• Clear/Transparent	• Colors Available	
Processing Method	• Blow Molding	• Injection Molding	

Properties [1]

Physical	**Nominal Value**	**Unit**	**Test Method**
Density (73°F)	1.20	g/cm³	ISO 1183
Apparent (Bulk) Density [2]	0.66	g/cm³	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	2.5	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	2.0	cm³/10min	ISO 1133
Molding Shrinkage [3]			ISO 294-4
Across Flow : 0.0787 in	0.80	%	
Flow : 0.0787 in	0.75	%	
Water Absorption (Saturation, 73°F)	0.30	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.12	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus (73°F)	334000	psi	ISO 527-1/1
Tensile Stress (Yield, 73°F)	9280	psi	ISO 527-2/50
Tensile Stress (Break, 73°F)	9430	psi	ISO 527-2/50
Tensile Strain (Yield, 73°F)	6.6	%	ISO 527-2/50
Tensile Strain (Break, 73°F)	100	%	ISO 527-2/50
Nominal Tensile Strain at Break (73°F)	> 50	%	ISO 527-2/50
Flexural Modulus [4] (73°F)	334000	psi	ISO 178
Flexural Stress [4]			ISO 178
3.5% Strain	10200	psi	
73°F	13600	psi	
Flexural Strain at Flexural Strength [5] (73°F)	7.2	%	ISO 178
Films	**Nominal Value**	**Unit**	**Test Method**
Carbon Dioxide Transmission Rate (3.9 mil)	271	cm³/100 in²/24 hr	ISO 2556
Nitrogen Transmission Rate (3.9 mil)	9.03	cm³/100 in²/24 hr	ISO 2556
Oxygen Transmission Rate (3.9 mil)	48	cm³/100 in²/24 hr	ISO 2556
Water Vapor Transmission Rate (73°F, 85% RH, 3.9 mil)	0.97	g/100 in²/24 hr	ISO 15106-1
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength [6]			ISO 179/1eA
-22°F, Complete Break	9.5	ft·lb/in²	
73°F, Partial Break	36	ft·lb/in²	

Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F	No Break		
73°F	No Break		
Notched Izod Impact Strength [6]			ISO 180/A
-22°F, Partial Break	26	ft·lb/in²	
73°F, Partial Break	31	ft·lb/in²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-22°F	44.3	ft·lb	
73°F	40.6	ft·lb	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F	1440	lbf	
73°F	1240	lbf	
Hardness	**Nominal Value**	**Unit**	**Test Method**
Ball Indentation Hardness	15700	psi	ISO 2039-1
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load (66 psi, Unannealed)	293	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	270	°F	ISO 75-2/A
Glass Transition Temperature [7]	306	°F	ISO 11357-2
Vicat Softening Temperature			
--	304	°F	ISO 306/B120
--	302	°F	ISO 306/B50
Ball Pressure Test (291°F)	Pass		IEC 60695-10-2
CLTE - Flow (73 to 131°F)	3.9E-7	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.9E-7	in/in/°F	ISO 11359-2
Thermal Conductivity [8] (73°F)	1.4	Btu·in/hr/ft²/°F	ISO 8302
Flammability	**Nominal Value**	**Unit**	**Test Method**
Oxygen Index [9]	26	%	ISO 4589-2
Flash Ignition Temperature	896	°F	ASTM D1929
Self Ignition Temperature	1022	°F	ASTM D1929

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] 10°C/min

[8] Through-plane

[9] Procedure A