

Makrolon® WB1239

 Covestro - Polycarbonates - *Polycarbonate*

General Information

Product Description

MVR (300°C/1.2 kg) 2.0 cm³/10 min; blow molding; high viscosity; branched; food contact quality; extrusion blow molding; injection stretch blow molding; available in transparent colors only; water bottles

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East	• Europe	• North America
	• Asia Pacific	• Latin America	
Features	• Food Contact Acceptable	• High Viscosity	
Uses	• Blow Molding Applications	• Bottles	
RoHS Compliance	• RoHS Compliant		
Appearance	• Clear/Transparent	• Colors Available	
Processing Method	• Blow Molding	• Extrusion Blow Molding	• Injection Stretch Blow Molding
ISO Designation	• ISO 7391-PC,B,(,)-05-9		

 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 : 536°F, 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
73°F	13600	psi	
3.5% Strain, 73°F	10200	psi	
Flexural Strain at Flexural Strength ⁵ (73°F)	7.2	%	ISO 178
Films	Nominal Value	Unit	Test Method
Water Vapor Transmission Rate (73°F, 85% RH, 3.9 mil)	0.97	g/100 in²/24 hr	ISO 15106-1
Gas Permeation			ISO 2556
Carbon Dioxide : 3.9 mil	4200	cm³/m²/bar/24 hr	
Nitrogen : 3.9 mil	140	cm³/m²/bar/24 hr	
Oxygen : 3.9 mil	740	cm³/m²/bar/24 hr	
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/in ²		
Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F	No Break		
-22°F	No Break		
73°F	No Break		
Notched Izod Impact Strength ⁶			ISO 180/A
-22°F, Partial Break	26 ft·lb/in ²		
73°F, Partial Break	31 ft·lb/in ²		
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-5	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F)	3.9E-5	in/in/°F	ISO 11359-2
Thermal Conductivity ⁸ (73°F)	1.4	Btu·in/hr/ft ² /°F	ISO 8302
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)	860	V/mil	IEC 60243-1
Relative Permittivity			IEC 60250
73°F, 100 Hz	3.10		
73°F, 1 MHz	3.00		
Dissipation Factor			IEC 60250
73°F, 100 Hz	1.0E-3		
73°F, 1 MHz	0.010		
Comparative Tracking Index			IEC 60112
Solution A	250	V	
Solution B	100	V	
Flammability	Nominal Value	Unit	Test Method
Glow Wire Flammability Index			IEC 60695-2-12
0.030 in	1650	°F	
0.06 in	1650	°F	
0.12 in	1710	°F	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.030 in	1650	°F	
0.06 in	1650	°F	
0.12 in	1650	°F	
Oxygen Index ⁹	26	%	ISO 4589-2
Flash Ignition Temperature	896	°F	ASTM D1929
Self Ignition Temperature	1022	°F	ASTM D1929
Optical	Nominal Value	Unit	Test Method
Refractive Index ¹⁰	1.587		ISO 489
Light Transmittance			ISO 13468-2
39.37 mil	88.0	%	
	87.0	%	
	84.0	%	
(mil)	< 0.800	%	ISO

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

Standard Melt Temperature: 300°C
 Peripheral Screw Speed: 0.05 - 0.2 m/s
 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 3.0 mm
- ⁷ 10°C/min
- ⁸ Across Flow
- ⁹ Procedure A
- ¹⁰ Method A

