

Makrolon® WB1239

Polycarbonate

Covestro - Polycarbonates

Message:

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 Information	
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

Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.20	g/cm ³	ISO 1183
Apparent Density ¹	0.66	g/cm ³	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)	2.00	cm ³ /10min	ISO 1133
Molding Shrinkage ²			ISO 294-4
Across Flow : 2.00 mm	0.80	%	
Flow : 2.00 mm	0.75	%	
Water Absorption			ISO 62
Saturation, 23°C	0.30	%	
Equilibrium, 23°C, 50% RH	0.12	%	
Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness	108	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	2300	MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield, 23°C	64.0	MPa	
Break, 23°C	65.0	MPa	

Tensile Strain			ISO 527-2/50
Yield, 23°C	6.6	%	
Break, 23°C	100	%	
Nominal Tensile Strain at Break (23°C)	> 50	%	ISO 527-2/50
Flexural Modulus ³ (23°C)	2300	MPa	ISO 178
Flexural Stress ⁴			ISO 178
3.5% Strain,23°C	70.0	MPa	
23°C	94.0	MPa	
Flexural Strain at Flexural Strength (23°C) ⁵	7.2	%	ISO 178
Gas Permeation			ISO 2556
Carbon Dioxide : 23°C, 100.0 µm	4200	cm ³ /m ² /bar/24 hr	
Nitrogen : 23°C, 100.0 µm	140	cm ³ /m ² /bar/24 hr	
Oxygen : 23°C, 100.0 µm	740	cm ³ /m ² /bar/24 hr	
Flash Ignition Temperature	480	°C	ASTM D1929
Self Ignition Temperature	550	°C	ASTM D1929
ISO Shortname	ISO 7391-PC,B,(,,)-05-9		
Films	Nominal Value	Unit	Test Method
Water Vapor Transmission Rate (23°C, 85% RH, 100 µm)	15	g/m ² /24 hr	ISO 15106-1
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ⁶			ISO 7391
-30°C, Complete Break	20	kJ/m ²	
23°C, Partial Break	75	kJ/m ²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-60°C	No Break		
-30°C	No Break		
23°C	No Break		
Notched Izod Impact Strength ⁷			ISO 7391
-30°C, Partial Break	55	kJ/m ²	
23°C, Partial Break	65	kJ/m ²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-30°C	60.0	J	
23°C	55.0	J	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-30°C	6400	N	
23°C	5500	N	
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed	145	°C	ISO 75-2/B
1.8 MPa, Unannealed	132	°C	ISO 75-2/A
Glass Transition Temperature ⁸	152	°C	ISO 11357-2
Vicat Softening Temperature			

--	150	°C	ISO 306/B50
--	151	°C	ISO 306/B120
Ball Pressure Test (144°C)	Pass		IEC 60695-10-2
CLTE			ISO 11359-2
Flow : 23 to 55°C	7.0E-5	cm/cm/°C	
Transverse : 23 to 55°C	7.0E-5	cm/cm/°C	
Thermal Conductivity ⁹ (23°C)	0.20	W/m/K	ISO 8302
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	1.0E+16	ohms	IEC 60093
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Electric Strength (23°C, 1.00 mm)	34	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
23°C, 100 Hz	3.10		
23°C, 1 MHz	3.00		
Dissipation Factor			IEC 60250
23°C, 100 Hz	1.0E-3		
23°C, 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
0.750 mm	900	°C	
1.50 mm	900	°C	
3.00 mm	930	°C	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.750 mm	900	°C	
1.50 mm	900	°C	
3.00 mm	900	°C	
Oxygen Index ¹⁰	26	%	ISO 4589-2
Optical	Nominal Value	Unit	Test Method
Refractive Index ¹¹	1.587		ISO 489
Transmittance			ISO 13468-2
1000 µm	88.0	%	
2000 µm	87.0	%	
4000 µm	84.0	%	
Haze (3000 µm)	< 0.80	%	ISO 14782
NOTE			
1.	Pellets		
2.	60x60x2 mm, 500 bar		
3.	2.0 mm/min		
4.	2.0 mm/min		

5.	2 mm/min
6.	Based on ISO 179-1eA, 3 mm
7.	Based on ISO 180-A, 3 mm
8.	10°C/min
9.	Cross-flow
10.	Procedure A
11.	Method A

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