Makrolon® 6555

Polycarbonate

Bayer MaterialScience - Polycarbonates

UL IDES | Prospector

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Technical Data

Product Description

MVR (300 °C/1.2 kg) 10 cm³/10 min; Chlorine- and bromine-free flame retardancy; UL 94V-0/3.0 mm; Medium viscosity; Easy release; Injection molding - Melt temperature 280 - 320 °C; Available in transparent, translucent and opaque colors

General

Material Status	• Commercial: Active		
Literature [1]	• Technical Datasheet (Chinese (Traditional)) • Technical Datasheet (Chinese) • Technical Datasheet (English) • Technical Datasheet (German)		
UL Yellow Card [2]	• E41613-233152 • E41613-233153		
Search for UL Yellow Card	• Bayer MaterialScience - Polycarbonates • Makrolon®		
Availability	• Africa & Middle East • Asia Pacific • Central America	• Europe • Latin America • North America	• South America
Features	• Flame Retardant	• Good Mold Release	• Medium Viscosity
RoHS Compliance	• RoHS Compliant		
Appearance	• Clear/Transparent	• Colors Available	• Translucent
Forms	• Pellets		
Processing Method	• Injection Molding		
Multi-Point Data	• Creep Modulus vs. Time (ISO 11403-1) • Isochronous Stress vs. Strain (ISO 11403-1) • Isothermal Stress vs. Strain (ISO 11403-1)	• Secant Modulus vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Specific Volume vs Temperature (ISO 11403-2)	• Viscosity vs. Shear Rate (ISO 11403-2)

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.20 g/cm³	1.20 g/cm³	ISO 1183
Apparent Density [4]	0.64 g/cm³	0.64 g/cm³	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10 g/10 min	10 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	0.610 in³/10min	10.0 cm³/10min	ISO 1133
Molding Shrinkage			
Across Flow	0.60 to 0.80 %	0.60 to 0.80 %	ISO 2577
Flow	0.60 to 0.80 %	0.60 to 0.80 %	ISO 2577
Across Flow : 0.0787 in (2.00 mm) [5]	0.75 %	0.75 %	ISO 294-4
Flow : 0.0787 in (2.00 mm) [5]	0.70 %	0.70 %	ISO 294-4
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.30 %	0.30 %	
Equilibrium, 73°F (23°C), 50% RH	0.12 %	0.12 %	

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus (73°F (23°C))	348000 psi	2400 MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield, 73°F (23°C)	9570 psi	66.0 MPa	
Break, 73°F (23°C)	10200 psi	70.0 MPa	
Tensile Strain			ISO 527-2/50
Yield, 73°F (23°C)	6.2 %	6.2 %	
Break, 73°F (23°C)	130 %	130 %	
Nominal Tensile Strain at Break			ISO 527-2/50
73°F (23°C)	> 50 %	> 50 %	

Document Created: Friday, December 13, 2013
Added to Prospector: January, 1999
Last Updated: 5/29/2013

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Creep Modulus			ISO 899-1
1 hr	319000 psi	2200 MPa	
1000 hr	276000 psi	1900 MPa	
Flexural Modulus [6] (73°F (23°C))	348000 psi	2400 MPa	ISO 178
Flexural Strength [6]			ISO 178
73°F (23°C)	14200 psi	98.0 MPa	
3.5% Strain, 73°F (23°C)	10700 psi	74.0 MPa	
Flexural Strain at Flexural Strength [7]			ISO 178
73°F (23°C)	7.1 %	7.1 %	
Films	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Water Vapor Transmission Rate			ISO 15106-1
73°F (23°C), 3.9 mil (100 µm), 85% RH	0.97 g/100 in²/24 hr	15 g/m²/24 hr	
Carbon Dioxide Permeability			ISO 2556
73°F (23°C), 1.0 mil (25.4 µm)	16900 cm³/m²/bar/24 hr	16900 cm³/m²/bar/24 hr	
73°F (23°C), 3.9 mil (100.0 µm)	4300 cm³/m²/bar/24 hr	4300 cm³/m²/bar/24 hr	
Nitrogen Permeability			ISO 2556
73°F (23°C), 1.0 mil (25.4 µm)	510 cm³/m²/bar/24 hr	510 cm³/m²/bar/24 hr	
73°F (23°C), 3.9 mil (100.0 µm)	130 cm³/m²/bar/24 hr	130 cm³/m²/bar/24 hr	
Oxygen Permeability			ISO 2556
73°F (23°C), 1.0 mil (25.4 µm)	2800 cm³/m²/bar/24 hr	2800 cm³/m²/bar/24 hr	
73°F (23°C), 3.9 mil (100.0 µm)	700 cm³/m²/bar/24 hr	700 cm³/m²/bar/24 hr	
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Charpy Notched Impact Strength [8]			ISO 179/1eA
-22°F (-30°C), Complete Break	6.7 ft·lb/in²	14 kJ/m²	
73°F (23°C), Partial Break	33 ft·lb/in²	70 kJ/m²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F (-60°C)	No Break	No Break	
-22°F (-30°C)	No Break	No Break	
73°F (23°C)	No Break	No Break	
Notched Izod Impact Strength [9]			ISO 180/A
-22°F (-30°C), Complete Break	5.7 ft·lb/in²	12 kJ/m²	
73°F (23°C), Partial Break	38 ft·lb/in²	80 kJ/m²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-22°F (-30°C)	47.9 ft·lb	65.0 J	
73°F (23°C)	44.3 ft·lb	60.0 J	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F (-30°C)	1420 lbf	6300 N	
73°F (23°C)	1210 lbf	5400 N	
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Ball Indentation Hardness	16700 psi	115 MPa	ISO 2039-1
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Heat Deflection Temperature			
66 psi (0.45 MPa), Unannealed	279 °F	137 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	257 °F	125 °C	ISO 75-2/A
Glass Transition Temperature [10]	293 °F	145 °C	ISO 11357-2
Vicat Softening Temperature			
--	291 °F	144 °C	ISO 306/B50
--	293 °F	145 °C	ISO 306/B120
Ball Pressure Test (277°F (136°C))	Pass	Pass	IEC 60695-10-2
CLTE			ISO 11359-2
Flow : 73 to 131°F (23 to 55°C)	0.000036 in/in/°F	0.000065 cm/cm/°C	
Transverse : 73 to 131°F (23 to 55°C)	0.000036 in/in/°F	0.000065 cm/cm/°C	
Thermal Conductivity [11] (73°F (23°C))	1.4 Btu·in/hr/ft²/°F	0.20 W/m/K	ISO 8302

Document Created: Friday, December 13, 2013
Added to Prospector: January, 1999
Last Updated: 5/29/2013

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
RTI Elec (0.0591 in (1.50 mm))	257 °F	125 °C	UL 746
RTI Imp (0.0591 in (1.50 mm))	239 °F	115 °C	UL 746
RTI Str (0.0591 in (1.50 mm))	257 °F	125 °C	UL 746
Electrical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Surface Resistivity	1.0E+16 ohm	1.0E+16 ohm	IEC 60093
Volume Resistivity (73°F (23°C))	1.0E+16 ohm·cm	1.0E+16 ohm·cm	IEC 60093
Electric Strength			IEC 60243-1
73°F (23°C), 0.0394 in (1.00 mm)	860 V/mil	34 kV/mm	
Relative Permittivity			IEC 60250
73°F (23°C), 100 Hz	3.10	3.10	
73°F (23°C), 1 MHz	3.00	3.00	
Dissipation Factor			IEC 60250
73°F (23°C), 100 Hz	0.00080	0.00080	
73°F (23°C), 1 MHz	0.0090	0.0090	
Comparative Tracking Index			IEC 60112
Solution A	225 V	225 V	
Solution B	125 V	125 V	
Flammability	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Flame Rating			UL 94
0.0394 in (1.00 mm)	V-2	V-2	
0.118 in (3.00 mm)	V-0	V-0	
Glow Wire Flammability Index			IEC 60695-2-12
0.0295 in (0.750 mm)	1610 °F	875 °C	
0.0591 in (1.50 mm)	1760 °F	960 °C	
0.118 in (3.00 mm)	1760 °F	960 °C	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.0295 in (0.750 mm)	1610 °F	875 °C	
0.0591 in (1.50 mm)	1610 °F	875 °C	
0.118 in (3.00 mm)	1610 °F	875 °C	
Oxygen Index [12]	35 %	35 %	ISO 4589-2
Application of Flame from Small Burner [13]			DIN 53438-1, -3
78.7 mil (2.00 mm)	K1, F1	K1, F1	
Burning Rate [14] (< 39.4 mil (< 1.00 mm))	Passed	Passed	ISO 3795
Flash Ignition Temperature	860 °F	460 °C	ASTM D1929
Glow Wire Test			EDF HN60 E.02
59.1 mil (1.50 mm)	1382 °F	750 °C	
0.12 in (3.00 mm)	1382 °F	750 °C	
Needle Flame Test			IEC 60695-11-5
Method F : 59.1 mil (1.50 mm)	2.0 min	2.0 min	
Method F : 78.7 mil (2.00 mm)	2.0 min	2.0 min	
Method F : 0.12 in (3.00 mm)	2.0 min	2.0 min	
Method K : 59.1 mil (1.50 mm)	1.0 min	1.0 min	
Method K : 78.7 mil (2.00 mm)	2.0 min	2.0 min	
Method K : 0.12 in (3.00 mm)	2.0 min	2.0 min	
Self Ignition Temperature	986 °F	530 °C	ASTM D1929
Optical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Refractive Index [15]	1.586	1.586	ISO 489
Transmittance			ISO 13468-2
39.4 mil (1000 µm)	89.0 %	89.0 %	
78.7 mil (2000 µm)	89.0 %	89.0 %	
118 mil (3000 µm)	88.0 %	88.0 %	
157 mil (4000 µm)	87.0 %	87.0 %	

Document Created: Friday, December 13, 2013
Added to Prospector: January, 1999
Last Updated: 5/29/2013

Additional Information	Nominal Value (English)	Nominal Value (SI)	Test Method
Electrolytical Corrosion	A1	A1	IEC 60426

Injection	Nominal Value (English)	Nominal Value (SI)
Processing (Melt) Temp	536 to 608 °F	280 to 320 °C

Notes

[1] These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

[2] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL IDES continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

[3] Typical properties: these are not to be construed as specifications.

[4] Pellets

[5] 60x60x2 mm, 500 bar

[6] 0.079 in/min (2.0 mm/min)

[7] 2 mm/min

[8] 3 mm

[9] 3.2 mm

[10] 10°C/min

[11] Cross-flow, 50% RH

[12] Procedure A

[13] Method K and F

[14] US-FMVSS

[15] Method A

Document Created: Friday, December 13, 2013
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Last Updated: 5/29/2013

Where to Buy

Supplier

Bayer MaterialScience - Polycarbonates
Leverkusen, Germany
Telephone: +49-214-30-1
Web: http://plastics.bayer.com/

Distributor

Amco Polymers LLC
Telephone: 800-262-6685
Web: http://www.amcopolymers.com/
Availability: North America

Bay State Polymer
Telephone: 800-277-7797
Web: http://www.baystatepolymer.com/
Availability: North America

M. Holland Canada Company
Telephone: 905-665-1168
Web: http://www.mholland.com/
Availability: Canada

M. Holland Company
Telephone: 855-497-1403
Web: http://www.mholland.com/
Availability: Mexico, United States

PolyOne Distribution
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Telephone: 800-894-4266
Web: http://polyonedistribution.com/
Availability: Global

Document Created: Friday, December 13, 2013
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