Makrolon® 6555

Bayer MaterialScience LLC - Polycarbonate

Friday, August 01, 2008

General Information

Product Description

Global grade; MVR 9.5 cm³/10 min; Flame retardant; UL 94 V-0/3.0 mm; Medium viscosity; Easy release; Injection molding; Available in transparent, translucent and opaque colors

General

Material Status	• Commercial: Active		
Availability	• North America		
Additive	• Ignition Resistant	• Mold Release	
Features	• Flame Retardant	• Good Mold Release	• Medium Viscosity
Agency Ratings	• EU 2000/53/EC	• EU 2002/96/EC	• EU 2003/11/EC
RoHS Compliance	• RoHS Compliant		
Appearance	• Clear/Transparent • Colors Available	• Opaque • Translucent	
Forms	• Pellets		
Processing Method	• Extrusion	• 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 11403-2) • Specific Volume vs Temperature (ISO 11403-2)	• Viscosity vs. Shear Rate (ISO 11403-2)

ASTM and ISO Properties [1]

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity	1.20	1.20	ASTM D792
Density	0.0434 lb/in³	1200 kg/m³	ISO 1183 [2]
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10 g/10 min	10 g/10 min	ASTM D1238
Melt volume-flow rate (300°C/1.2 kg)	0.580 in³/10min	9.50 cm³/10min	ISO 1133 [2]
Molding Shrinkage (Flow)	0.0060 to 0.0080 in/in	0.60 to 0.80 %	ASTM D955
Water Absorption (24 hr, 73 °F (23 °C))	0.12 %	0.12 %	ASTM D570
Water Absorption (Saturation, 73 °F (23 °C))	0.30 %	0.30 %	ASTM D570
Water Absorption (Saturation)	0.30 %	0.30 %	ISO 62 [2]
Water Absorption (Equilibrium)	0.12 %	0.12 %	ISO 62 [2]
Viscosity number	59.0 cm³/g	59.0 cm³/g	ISO 307, 1157, 1628 [2]

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus [3]	350000 psi	2410 MPa	ASTM D638
Tensile modulus	348000 psi	2400 MPa	ISO 527-2 [2]
Tensile Strength (Yield)	9400 psi	64.8 MPa	ASTM D638
Tensile Stress (Yield)	9430 psi	65.0 MPa	ISO 527-2 [2]
Tensile Strength (Break)	10200 psi	70.3 MPa	ASTM D638
Tensile Elongation (Yield)	6.0 %	6.0 %	ASTM D638
Tensile Strain (Yield)	6.0 %	6.0 %	ISO 527-2 [2]
Tensile Elongation (Break)	120 %	120 %	ASTM D638
Nominal strain at break	> 50.0 %	> 50.0 %	ISO 527-2 [2]

Copyright © 2008 - IDES - The Plastics Web ®
The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

Makrolon® 6555

Bayer MaterialScience LLC - Polycarbonate

Friday, August 01, 2008

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Creep Modulus (1 hr)	319000 psi	2200 MPa	ISO 899-1 [2]
Tensile Creep Modulus (1000 hr)	276000 psi	1900 MPa	ISO 899-1 [2]
Flexural Modulus	340000 psi	2340 MPa	ASTM D790
Flexural Strength	13200 psi	91.0 MPa	ASTM D790
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Charpy impact strength (73 °F (23 °C))	No Break	No Break	ISO 179/1eU [2]
Charpy impact strength (-22 °F (-30 °C))	No Break	No Break	ISO 179/1eU [2]
Notched Izod Impact			ASTM D256
73 °F (23 °C), 0.125 in (3.18 mm)	16.0 ft·lb/in	854 J/m	
Puncture energy (+23°C)	44.3 ft·lb	60.0 J	ISO 6603-2 [2]
Puncture energy (-30°C)	47.9 ft·lb	65.0 J	ISO 6603-2 [2]
Puncture - maximum force (+23°C)	1210 lbf	5400 N	ISO 6603-2 [2]
Puncture - maximum force (-30°C)	1440 lbf	6400 N	ISO 6603-2 [2]
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Rockwell Hardness			ASTM D785
M-Scale	75	75	
R-Scale	120	120	
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed, 0.250 in (6.35 mm)	280 °F	138 °C	
Deflection Temperature Under Load			ISO 75-2 [2]
66 psi (0.45 MPa)	279 °F	137 °C	
Deflection Temperature Under Load			ASTM D648
264 psi (1.8 MPa), Unannealed, 0.250 in (6.35 mm)	268 °F	131 °C	
Deflection Temperature Under Load			ISO 75-2 [2]
264 psi (1.8 MPa)	257 °F	125 °C	
Glass Transition Temperature			ISO 11357-2 [2]
18 °F/min (10 °C/min)	300 °F	150 °C	
Vicat Softening Temperature			ASTM D1525
Rate A, Loading 2 (50 N)	291 °F	144 °C	
Vicat Softening Temperature			ISO 306 [2]
50°C/h, B (50N)	291 °F	144 °C	
CLTE (Flow)	0.000033 in/in/°F	0.000060 cm/cm/°C	ASTM D696
CLTE (Flow)	0.000033 in/in/°F	0.000060 cm/cm/°C	ISO 11359-2 [2]
CLTE (Transverse)	0.000033 in/in/°F	0.000060 cm/cm/°C	ISO 11359-2 [2]
Specific Heat	0.280 Btu/lb/°F	1170 J/kg/°C	ASTM C351
Thermal Conductivity	1.4 Btu·in/hr/ft²/°F	0.20 W/m/K	ASTM C177
Electrical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Surface Resistivity	1.0E+16 ohms	1.0E+16 ohms	ASTM D257
Surface resistivity	> 1.0E+15 ohms	> 1.0E+15 ohms	IEC 60093 [2]
Volume Resistivity	1.0E+16 ohm·cm	1.0E+16 ohm·cm	ASTM D257
Volume resistivity	> 3.9E+14 ohm·in	> 1.0E+13 ohm·m	IEC 60093 [2]
Dielectric Strength [4] (73 °F (23 °C), in Oil)	810 V/mil	31.9 kV/mm	ASTM D149

Copyright © 2008 - IDES - The Plastics Web ®
The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

Makrolon® 6555

Bayer MaterialScience LLC - Polycarbonate

Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Dielectric Constant			ASTM D150
60 Hz	3.000	3.000	
1E+6 Hz	2.900	2.900	
Relative Permittivity (100 Hz)	3.10	3.10	IEC 60250 [2]
Relative Permittivity (1 MHz)	3.00	3.00	IEC 60250 [2]
Dissipation Factor			ASTM D150
60 Hz	0.00090	0.00090	
1E+6 Hz	0.0100	0.0100	
Dissipation Factor (100 Hz)	0.00050	0.00050	IEC 60250 [2]
Dissipation Factor (1 MHz)	0.0090	0.0090	IEC 60250 [2]
Comparative tracking index	225	225	IEC 60112 [2]
Electric strength	810 V/mil	32 kV/mm	IEC 60243-1 [2]

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL			UL 94
0.0590 in (1.50 mm)	V-2	V-2	
0.118 in (3.00 mm)	V-0	V-0	
0.236 in (6.00 mm)	V-0	V-0	
Burning Behav. at 1.6mm nom. thickn.			ISO 1210 [2]
0.06 in (1.50 mm), UL	V-2	V-2	
Burning Behav. at thickness h			ISO 1210 [2]
0.118 in (3.00 mm), UL	V-0	V-0	
Oxygen Index	37 %	37 %	ASTM D2863
Oxygen index	37 %	37 %	ISO 4589-2 [2]

UL 746	Nominal Value (English)	Nominal Value (SI)	Test Method
RTI Str (0.0590 in (1.50 mm))	257 °F	125 °C	UL 746
RTI Imp (0.0590 in (1.50 mm))	239 °F	115 °C	UL 746
RTI Elec (0.0590 in (1.50 mm))	257 °F	125 °C	UL 746

Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.586	1.586	ASTM D542
Transmittance (125 mil (3180 µm))	87.0 %	87.0 %	ASTM D1003

Additional Properties

The value listed as Specific Heat, ASTM C351, was tested in accordance with ASTM D2766.
Flexural Stress, ASTM D790, 5% Strain: 13,200 psi
Specific Volume, ASTM D792: 23.1 in³/lb

Notes

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

[2] Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

[3] 0.039 in/min (1.00 mm/min)

[4] Method A (Short-Time)

Copyright © 2008 - IDES - The Plastics Web ®
The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.