

## SABIC Innovative Plastics Lexan® DMX3415 PC Copolymer

Category : Polymer , Thermoplastic , Polycarbonate (PC)

### Material Notes:

Lexan® DMX3415 is a co-polycarbonate resin with improved scratch resistance, high purity and optical quality. This data was supplied by SABIC-IP for the Americas region.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-Lexan-DMX3415-PC-Copolymer.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Lexan-DMX3415-PC-Copolymer.php)

Physical Properties	Metric	English	Comments
Specific Gravity	1.20 g/cc	1.20 g/cc	ASTM D 792
Density	1.17 g/cc	0.0423 lb/in <sup>3</sup>	ASTM D 792
	1.17 g/cc	0.0423 lb/in <sup>3</sup>	ISO 1183
Water Absorption	0.080 % @Time 86400 sec	0.080 % @Time 24.0 hour	ASTM D 570
Moisture Absorption at Equilibrium	0.13 %	0.13 %	23°C / 50% RH; ISO 62
	0.13 %	0.13 %	50% RH; ASTM D 570
	0.28 % @Temperature 23.0 °C	0.28 % @Temperature 73.4 °F	ASTM D 570
	0.040 % @Time 86400 sec	0.040 % @Time 24.0 hour	50% RH; ASTM D 570
Water Absorption at Saturation	0.27 % @Temperature 23.0 °C	0.27 % @Temperature 73.4 °F	ISO 62
Moisture Vapor Transmission	0.900 cc-mm/m <sup>2</sup> -24hr-atm @Temperature 38.0 °C	2.29 cc-mil/100 in <sup>2</sup> -24hr-atm @Temperature 100 °F	100%RH; ASTM F 1249
Linear Mold Shrinkage, Flow	0.0050 - 0.0080 cm/cm @Thickness 3.20 mm	0.0050 - 0.0080 in/in @Thickness 0.126 in	SABIC Method
Melt Flow	13 g/10 min @Load 1.20 kg, Temperature 300 °C	13 g/10 min @Load 2.65 lb, Temperature 572 °F	[cm <sup>3</sup> /10 min] Melt Volume Rate; ISO 1133
	14.5 g/10 min @Load 1.20 kg, Temperature 300 °C	14.5 g/10 min @Load 2.65 lb, Temperature 572 °F	ASTM D 1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell L	108	108	ASTM D 785
Hardness, Rockwell M	93	93	ASTM D 785
Hardness, H358/30	128 MPa	18600 psi	ISO 2039-1
Tensile Strength at Break	60.0 MPa	8700 psi	50 mm/min; ISO 527
	65.0 MPa	9430 psi	Type I, 50 mm/min; ASTM D 638
Tensile Strength, Yield	80.0 MPa	11600 psi	Type I, 50 mm/min; ASTM D 638
	80.0 MPa	11600 psi	50 mm/min; ISO 527
Elongation at Break	40 %	40 %	50 mm/min; ISO 527
	70 %	70 %	Type I, 50 mm/min; ASTM D 638
Elongation at Yield	7.0 %	7.0 %	Type I, 50 mm/min; ASTM D 638
	7.0 %	7.0 %	50 mm/min; ISO 527
Tensile Modulus	2.45 GPa	355 ksi	1 mm/min; ISO 527
	2.90 GPa	421 ksi	50 mm/min; ASTM D 638
Flexural Yield Strength	108 MPa	15700 psi	2 mm/min; ISO 178
	120 MPa	17400 psi	1.3 mm/min, 50 mm span; ASTM D 790
Flexural Modulus	2.45 GPa	355 ksi	2 mm/min; ISO 178
	2.60 GPa	377 ksi	1.3 mm/min, 50 mm span; ASTM D 790
Izod Impact, Notched	0.300 J/cm @Temperature 23.0 °C	0.562 ft-lb/in @Temperature 73.4 °F	ASTM D 256
	0.300 J/cm @Temperature -30.0 °C	0.562 ft-lb/in @Temperature -22.0 °F	ASTM D 256
Izod Impact, Unnotched	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	ASTM D 4812
Izod Impact, Notched (ISO)	4.00 kJ/m <sup>2</sup> @Temperature -30.0 °C	1.90 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	80*10*3; ISO 180/1A
	5.00 kJ/m <sup>2</sup> @Temperature 23.0 °C	2.38 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	80*10*3; ISO 180/1A

Mechanical Properties	Metric	English	Comments
ISO Impact, Unnotched (ISO)	45.0 kJ/m <sup>2</sup>	21.4 ft-lb/in <sup>2</sup>	80*10*3; ISO 180/1U
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	NB	NB	80*10*3; ISO 180/1U
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact Unnotched	4.70 J/cm <sup>2</sup>	22.4 ft-lb/in <sup>2</sup>	Edgew 80*10*3 sp=62mm; ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	NB	NB	Edgew 80*10*3 sp=62mm; ISO 179/1eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	0.300 J/cm <sup>2</sup>	1.43 ft-lb/in <sup>2</sup>	V-notch Edgew 80*10*3 sp=62mm; ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	0.300 J/cm <sup>2</sup>	1.43 ft-lb/in <sup>2</sup>	V-notch Edgew 80*10*3 sp=62mm; ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Impact Test	30.0 J	22.1 ft-lb	Instrumented Impact Total Energy; ASTM D 3763
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Taber Abrasion, mg/1000 Cycles	10	10	CS-17; ASTM D 1044
	@Load 1.00 kg	@Load 2.20 lb	
	10	10	CS-17; SABIC Method
	@Load 1.00 kg	@Load 2.20 lb	

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	70.0 µm/m-°C	38.9 µin/in-°F	ASTM E 831
	@Temperature -40.0 - 95.0 °C	@Temperature -40.0 - 203 °F	
	70.0 µm/m-°C	38.9 µin/in-°F	ISO 11359-2
	@Temperature 23.0 - 80.0 °C	@Temperature 73.4 - 176 °F	
CTE, linear, Transverse to Flow	70.0 µm/m-°C	38.9 µin/in-°F	ASTM E 831
	@Temperature -40.0 - 95.0 °C	@Temperature -40.0 - 203 °F	
	70.0 µm/m-°C	38.9 µin/in-°F	ISO 11359-2
	@Temperature 23.0 - 80.0 °C	@Temperature 73.4 - 176 °F	
Specific Heat Capacity	1.40 J/g-°C	0.335 BTU/lb-°F	ASTM C 351
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft <sup>2</sup> -°F	ASTM C 177

Thermal Properties	Metric U,200 W/m-K	English 1,000 BTU-in/hr-ft <sup>2</sup> -°F	Comments ISO 6302
Hot Ball Pressure Test	<= 140 °C	<= 284 °F	IEC 60695-10-2
Deflection Temperature at 0.46 MPa (66 psi)	131 °C	268 °F	Flatw 80*10*4 sp=64mm; ISO 75/Bf
	133 °C @Thickness 3.20 mm	271 °F @Thickness 0.126 in	unannealed; ASTM D 648
Deflection Temperature at 1.8 MPa (264 psi)	118 °C	244 °F	Flatw 80*10*4 sp=64mm; ISO 75/ Af
	119 °C @Thickness 3.20 mm	246 °F @Thickness 0.126 in	unannealed; ASTM D 648
Vicat Softening Point	138 °C	280 °F	Rate B/50; ISO 306
	139 °C	282 °F	Rate B/50; ASTM D 1525
	140 °C	284 °F	Rate B/120; ISO 306
Flammability, UL94	HB	HB	UL 94
	@Thickness 0.400 mm	@Thickness 0.0157 in	
Glow Wire Test	825 °C	1520 °F	Glow Wire Ignitability Temperature; IEC 60695-2-13
	@Thickness 1.00 mm	@Thickness 0.0394 in	
	960 °C	1760 °F	Glow Wire Flammability Index 960°C, passes at, by VDE; IEC 60695-2-12
	@Thickness 1.00 mm	@Thickness 0.0394 in	

Optical Properties	Metric	English	Comments
Refractive Index	1.584	1.584	ASTM D 542
	1.584	1.584	ISO 489
Haze	<= 0.80 %	<= 0.80 %	ASTM D 1003
	@Thickness 2.54 mm	@Thickness 0.100 in	
Transmission, Visible	88 %	88 %	ASTM D 1003
	@Thickness 2.54 mm	@Thickness 0.100 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+17 ohm-cm	>= 1.00e+17 ohm-cm	ASTM D 257
Dielectric Constant	2.8	2.8	ASTM D 150
	@Frequency 1.00e+6	@Frequency 1.00e+6	

Electrical Properties	Hz Metric	Hz English	Comments
	2.9	2.9	
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	ASTM D 150
Comparative Tracking Index	250 - 400 V	250 - 400 V	PLC code 2; UL 746A

Descriptive Properties	Value	Comments
Ball Pressure Test, 125°C +/- 2°C	PASSES	IEC 60695-10-2
Erichson scratch depth, 6N, micrometer	14	SABIC Method
Pencil Hardness test, 1kgf	H	ASTM D 3363

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