

DuPont™ Zenite® LCP

liquid crystal polymer resin

Zenite® 6330 BK010

Zenite® 6330 BK010 is a 30% mineral reinforced, black liquid crystal polymer resin having excellent toughness and a heat deflection temperature of 245°C.

Property	Test Method	Units	Value
Identification			
Resin Identification	ISO 1043		LCP-MD30
Part Marking Code	ISO 11469		>LCP-MD30<
Mechanical			
Stress at Break	ISO 527	MPa (kpsi)	125 (18.1)
Tensile Strength, 1.6mm (0.062in)	ASTM D 638	MPa (kpsi)	
-40°C (-40°F)			216 (31.3)
23°C (73°F)			141 (20.4)
120°C (248°F)			59 (8.6)
150°C (302°F)			49 (7)
200°C (392°F)			26 (3.8)
250°C (482°F)			17 (2.5)
Tensile Strength, 3.2mm (0.125in)	ASTM D 638	MPa (kpsi)	
-40°C (-40°F)			200 (29.3)
23°C (73°F)			125 (18.1)
120°C (250°F)			56 (8.1)
150°C (300°F)			48 (6.9)

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.
Test temperatures are 23°C unless otherwise stated.

During molding, use protective equipment and clothing. Skin contact with molten Zenite® resins can cause severe burns. Be particularly alert during purging.

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Property	Test Method	Units	Value
Mechanical			
Strain at Break	ISO 527	%	4.2
Elongation at Break, 1.6mm (0.062in)	ASTM D 638	%	
-40°C (-40°F)			2.8
23°C (73°F)			3.3
120°C (248°F)			2.0
150°C (302°F)			1.5
200°C (392°F)			0.9
250°C (482°F)			0.7
Elongation at Break, 3.2mm (0.125in)	ASTM D 638	%	
23°C (73°F)			4.0
120°C (250°F)			3.2
150°C (300°F)			2.5
Tensile Modulus	ISO 527	MPa (kpsi)	9200 (1330)
Tensile Modulus, 1.6mm (0.062in)	ASTM D 638	MPa (kpsi)	
-40°C (-40°F)			16500 (2400)
23°C (73°F)			11600 (1680)
120°C (248°F)			6150 (890)
150°C (302°F)			5800 (840)
200°C (392°F)			3750 (540)
250°C (482°F)			2770 (400)
Tensile Modulus, 3.2mm (0.125in)	ASTM D 638	MPa (kpsi)	
-40°C (-40°F)			11600 (1680)
23°C (73°F)			10500 (1520)
150°C (300°F)			4800 (690)
Flexural Modulus	ISO 178	MPa (kpsi)	8000 (1160)
Flexural Modulus, 0.8mm (0.031in)	ASTM D 790	MPa (kpsi)	
-40°C (-40°F)			16700 (2400)
23°C (73°F)			13900 (2000)
120°C (250°F)			5160 (750)
150°C (300°F)			5000 (720)

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Property	Test Method	Units	Value
Mechanical			
Flexural Modulus, 3.2mm (0.125in)	ASTM D 790	MPa (kpsi)	
-40°C (-40°F)			10700 (1600)
23°C (73°F)			9600 (1400)
120°C (250°F)			3400 (490)
150°C (300°F)			3300 (470)
Flexural Strength	ISO 178	MPa (kpsi)	145 (21.0)
Flexural Strength, 0.8mm (0.031in)	ASTM D 790	MPa (kpsi)	
-40°C (-40°F)			260 (38.6)
23°C (73°F)			158 (22.9)
120°C (250°F)			60 (8.7)
150°C (300°F)			50 (7.2)
Flexural Strength, 3.2mm (0.125in)	ASTM D 790	MPa (kpsi)	
-40°C (-40°F)			192 (27.6)
23°C (73°F)			125 (18.1)
120°C (250°F)			51 (7.3)
150°C (300°F)			42 (6.1)
Compressive Modulus	ASTM D 695	MPa (kpsi)	4100 (590)
Izod Impact	ASTM D 256	J/m (ft lb/in)	160 (3.0)
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m ²	
-30°C (-22°F)			7
23°C (73°F)			9
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m ²	
-30°C (-22°F)			40
23°C (73°F)			60

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Property	Test Method	Units	Value
Thermal			
Deflection Temperature	ISO 75-1/-2	°C (°F)	
0.45MPa			275 (527)
1.80MPa			245 (473)
Melting Temperature	ISO 11357-1/-3	°C (°F)	
10°C/min			335 (635)
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 260°C (-40 - 500°F), 2mm			0.03 (0.02)
-40 - 260°C (-40 - 500°F), 4mm			0.10 (0.06)
-40 - 23°C (-40 - 73°F), 2mm			0.04 (0.02)
-40 - 23°C (-40 - 73°F), 4mm			0.07 (0.04)
23 - 55°C (73 - 130°F), 2mm			0.05 (0.03)
23 - 55°C (73 - 130°F), 4mm			0.08 (0.04)
55 - 160°C (130 - 320°F), 2mm			0.05 (0.03)
55 - 160°C (130 - 320°F), 4mm			0.10 (0.06)
160 - 260°C (320 - 500°F), 2mm			-0.04 (-0.02)
160 - 260°C (320 - 500°F), 4mm			0.10 (0.06)
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)	
-40 - 260°C (-40 - 500°F), 2mm			0.37 (0.21)
-40 - 260°C (-40 - 500°F), 4mm			0.50 (0.28)
-40 - 23°C (-40 - 73°F), 2mm			0.34 (0.19)
-40 - 23°C (-40 - 73°F), 4mm			0.34 (0.19)
23 - 55°C (73 - 130°F), 2mm			0.40 (0.22)
23 - 55°C (73 - 130°F), 4mm			0.38 (0.21)
55 - 160°C (130 - 320°F), 2mm			0.44 (0.24)
55 - 160°C (130 - 320°F), 4mm			0.51 (0.28)
160 - 260°C (320 - 500°F), 2mm			0.46 (0.26)
160 - 260°C (320 - 500°F), 4mm			0.62 (0.34)
Glass Transition Temperature	ISO 11357-1/-2	°C (°F)	
10°C/min			120 (248)
Extrapolated End Melt Temp.	ASTM D 3418	°C (°F)	350 (662)

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Property	Test Method	Units	Value
Electrical			
Surface Resistivity	IEC 60093	ohm	1E16
Volume Resistivity	IEC 60093	ohm m	1E14
Electric Strength	IEC 60243-1	kV/mm (V/mil)	
1.0mm			35 (900)
2.0mm			26 (660)
Dielectric Strength, Short Time, 0.8mm	ASTM D 149	kV/mm (V/mil)	49 (1240)
Dielectric Strength, Short Time, 1.6mm	ASTM D 149	kV/mm (V/mil)	41 (1040)
Dielectric Strength, Short Time, 3.2mm	ASTM D 149	kV/mm (V/mil)	26 (660)
Relative Permittivity	IEC 60250		
1E2 Hz			3.8
1E6 Hz			3.4
Dielectric Strength, Step by Step, 0.8mm	ASTM D 149	kV/mm (V/mil)	40 (1020)
Dielectric Strength, Step by Step, 1.6mm	ASTM D 149	kV/mm (V/mil)	29 (740)
Dielectric Strength, Step by Step, 3.2mm	ASTM D 149	kV/mm (V/mil)	21 (530)
Dielectric Constant, 0.8mm (0.031in)	ASTM D 150		
1E2 Hz			3.3
1E3 Hz			3.3
1E6 Hz			2.9
Dielectric Constant, 0.8mm (0.031in)	ASTM D 2520 B		
23°C (73°F), 1E09 Hz			3.9
120°C (250°F), 1E09 Hz			4.0
150°C (300°F), 1E09 Hz			4.0
200°C (390°F), 1E09 Hz			4.2
23°C (73°F), 1E10 Hz			4.1
120°C (250°F), 1E10 Hz			4.1
150°C (300°F), 1E10 Hz			4.1
200°C (390°F), 1E10 Hz			4.1

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Property	Test Method	Units	Value
Electrical			
Dielectric Constant, 1.6mm (0.062in)	ASTM D 2520 B		
23°C (73°F), 1E09 Hz			3.9
120°C (250°F), 1E09 Hz			4.0
150°C (300°F), 1E09 Hz			4.0
200°C (390°F), 1E09 Hz			4.1
23°C (73°F), 1E10 Hz			4.0
120°C (250°F), 1E10 Hz			4.0
150°C (300°F), 1E10 Hz			4.0
200°C (390°F), 1E10 Hz			4.0
Dielectric Constant, 3.2mm (0.125in)	ASTM D 150		
1E2 Hz			3.6
1E3 Hz			3.6
1E6 Hz	ASTM D 2520 B		3.2
Dielectric Constant, 3.2mm (0.125in)			
23°C (73°F), 1E09 Hz			3.9
120°C (250°F), 1E09 Hz			4.0
150°C (300°F), 1E09 Hz			4.0
200°C (390°F), 1E09 Hz			4.1
250°C (480°F), 1E09 Hz			4.2
23°C (73°F), 1E10 Hz			4.1
120°C (250°F), 1E10 Hz			4.1
150°C (300°F), 1E10 Hz			4.1
200°C (390°F), 1E10 Hz			4.1
Dissipation Factor, 0.8mm (0.031in)	ASTM D 150		
1E2 Hz			0.009
1E3 Hz			0.013
1E6 Hz			0.029

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Property	Test Method	Units	Value
Electrical			
Dissipation Factor, 0.8mm (0.031in)	ASTM D 2520 B		
23°C (73°F), 1E09 Hz			0.002
120°C (250°F), 1E09 Hz			0.012
150°C (300°F), 1E09 Hz			0.018
200°C (390°F), 1E09 Hz			0.027
23°C (73°F), 1E10 Hz			0.001
120°C (250°F), 1E10 Hz			0.005
150°C (300°F), 1E10 Hz			0.009
200°C (390°F), 1E10 Hz			0.017
Dissipation Factor	IEC 60250	E-4	
1E2 Hz			140
1E6 Hz			310
Dissipation Factor, 1.6mm (0.062in)	ASTM D 2520 B		
23°C (73°F), 1E09 Hz			0.002
120°C (250°F), 1E09 Hz			0.014
23°C (73°F), 1E10 Hz			0.001
120°C (250°F), 1E10 Hz			0.006
150°C (300°F), 1E10 Hz			0.009
200°C (390°F), 1E10 Hz			0.018
Dissipation Factor, 3.2mm (0.125in)	ASTM D 150		
1E2 Hz			0.008
1E3 Hz			0.013
1E6 Hz			0.028

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Property	Test Method	Units	Value
Electrical			
Dissipation Factor, 3.2mm (0.125in)	ASTM D 2520 B		
23°C (73°F), 1E09 Hz			0.002
120°C (250°F), 1E09 Hz			0.014
150°C (300°F), 1E09 Hz			0.020
200°C (390°F), 1E09 Hz			0.029
250°C (480°F), 1E09 Hz			0.026
23°C (73°F), 1E10 Hz			0.001
120°C (250°F), 1E10 Hz			0.006
150°C (300°F), 1E10 Hz			0.009
200°C (390°F), 1E10 Hz			0.015
CTI	IEC 60112	V	200
CTI	UL 746A	V	175-249
Flammability			
Flammability Classification	IEC 60695-11-10		V-0
1.5mm			
Flammability Classification	UL94		V-0
1.5mm			
Oxygen Index	ISO 4589-1/-2	%	47
High Amperage Arc Ignition Resistance	UL 746A	arcs	
1.5mm			>119
3.0mm			>119
Temperature Index			
RTI, Electrical	UL 746B	°C	
1.5mm			240
RTI, Impact	UL 746B	°C	
1.5mm			220
RTI, Strength	UL 746B	°C	
1.5mm			240

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Other			
Density	ISO 1183	kg/m ³ (g/cm ³)	1640 (1.64)
Molding Shrinkage	ISO 294-4	%	
Normal, 2.0mm			0.4
Parallel, 2.0mm			0.0
Processing			
Melt Temperature Range		°C (°F)	350-360 (660-680)
Melt Temperature Optimum		°C (°F)	355 (670)
Mold Temperature Range		°C (°F)	40-150 (105-300)
Mold Temperature Optimum		°C (°F)	80 (175)
Drying Time, Dehumidified Dryer		h	3
Drying Temperature		°C (°F)	150 (304)
Processing Moisture Content		%	<0.01

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