LNP™ ELCRES™ ML4412

DESCRIPTION

LNP ELCRES ML4412 is based on Polycarbonate (PC) siloxane copolymer resin containing 20% glass fiber, medium flow, impact modified injection moldable grade. This grade is available in opaque colors only and is an excellent candidate for a broad range of applications that require a combination of stiffness and ductility.

GENERAL INFORMATION	
Features	High stiffness/Strength, Impact resistant, No PFAS intentionally added
Fillers	Glass Fiber (Total fluorine >50ppm only from inorganic fluorine)
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Consumer	Commercial Appliance
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Electrical, Material Handling, Defense

TYPICAL PROPERTY VALUES

Revision 20260401

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, brk, Type I, 5 mm/min	100	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D638
Tensile Modulus, 5 mm/min	6300	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	160	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	5800	MPa	ASTM D790
Tensile Stress, break, 5 mm/min	110	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	6500	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	165	MPa	ISO 178
Flexural Modulus, 2 mm/min	5700	MPa	ISO 178
IMPACT [1]			
Izod Impact, unnotched, 23°C	700	J/m	ASTM D4812
Izod Impact, notched, 23°C	140	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	25	J	ASTM D3763
Izod Impact, notched 80*10*3 +23°C	17	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	12	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	17	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	12	kJ/m²	ISO 179/1eA
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	135	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	132	°C	ASTM D648

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 40°C, flow	2.6E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.8E-05	1/°C	ASTM E831
Vicat Softening Temp, Rate B/120	142	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	137	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	133	°C	ISO 75/Ae
Relative Temp Index, Elec [2]	80	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	80	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	80	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.33	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [3]	0.2 – 0.3	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [3]	0.4 – 0.5	%	SABIC method
Melt Flow Rate			
300°C/1.2 kgf	11	g/10 min	ASTM D1238
Density	1.33	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.1	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.03	%	ISO 62
Melt Volume Rate			
300°C/1.2 kg	10	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Dielectric Constant			
1.1 GHz	3.11	-	ASTM ES 7-83
1.9 GHz	3.13	-	SABIC method
5 GHz	3.14	-	SABIC method
10 GHz	3.16	-	SABIC method
Dissipation Factor			
1.1 GHz	0.0064	-	ASTM ES 7-83
1.9 GHz	0.006	-	SABIC method
5 GHz	0.0051	-	SABIC method
10 GHz	0.0063	-	SABIC method
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104298581	-	-
UL Recognized, 94HB Flame Class Rating	≥0.4	mm	UL 94
INJECTION MOLDING [4]			
Drying Temperature	110	°C	
Drying Time	3 – 6	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	285 – 310	°C	
Nozzle Temperature	285 – 305	°C	
Front - Zone 3 Temperature	280 – 300	°C	
Middle - Zone 2 Temperature	270 – 290	°C	
Rear - Zone 1 Temperature	260 – 280	°C	
Mold Temperature	80 – 110	°C	
Back Pressure	0.1 – 0.3	MPa	
Screw Speed	50 – 90	rpm	

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(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

(4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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