LEXAN™ 3412ECR resin

Monday, March 09, 2015

General Information

Product Description

LEXAN 3412ECR Polycarbonate (PC) resin is a 20% glass fiber filled, injection moldable grade. This non-chlorinated, non-brominated flame retardant GF-PC has an UL-94 V0 rating and is available in various opaque color options. LEXAN 3412ECR is a resin designed to meet the needs of high stiffness applications.

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific	
Filler / Reinforcement	• Glass Fiber, 20% Filler by Weight	
Additive	• Flame Retardant	
Features	• Bromine Free • Chlorine Free	• Flame Retardant • High Stiffness
Appearance	• Opaque	
Processing Method	• Injection Molding	

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.30		ASTM D792
Density	1.36	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	7.0	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	0.427	in³/10min	ISO 1133
Molding Shrinkage - Flow (0.126 in)	2.0E-3 to 5.0E-3	in/in	Internal Method
Molding Shrinkage - Across Flow (0.126 in)	2.0E-3 to 5.0E-3	in/in	Internal Method
Water Absorption (Saturation, 73°F)	0.29	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.12	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus [2]	798000	psi	ASTM D638
Tensile Modulus	870000	psi	ISO 527-2/1
Tensile Strength [3] (Yield)	13100	psi	ASTM D638
Tensile Stress (Yield)	13800	psi	ISO 527-2/5
Tensile Strength [3] (Break)	12600	psi	ASTM D638
Tensile Stress (Break)	13100	psi	ISO 527-2/5
Tensile Elongation [3] (Yield)	3.1	%	ASTM D638
Tensile Strain (Yield)	2.8	%	ISO 527-2/5
Tensile Strain (Break)	3.2	%	ISO 527-2/5
Flexural Modulus [4] (1.97 in Span)	725000	psi	ASTM D790
Flexural Modulus [5]	798000	psi	ISO 178
Flexural Stress [5, 6]	20300	psi	ISO 178

LEXAN™ 3412ECR resin

SABIC Innovative Plastics Asia Pacific - Polycarbonate

Mechanical	Nominal Value	Unit	Test Method
Flexural Strength [4] (Yield, 1.97 in Span)	22600	psi	ASTM D790
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength [7]			ISO 179/1eA
-22°F	2.4	ft·lb/in²	
73°F	2.9	ft·lb/in²	
Charpy Unnotched Impact Strength [7]			ISO 179/1eU
-22°F	19	ft·lb/in²	
73°F	19	ft·lb/in²	
Notched Izod Impact			ASTM D256
-22°F	2.0	ft·lb/in	
73°F	2.1	ft·lb/in	
Notched Izod Impact Strength [8]			ISO 180/1A
-22°F	2.9	ft·lb/in²	
73°F	3.3	ft·lb/in²	
Unnotched Izod Impact Strength [8]			ISO 180/1U
-22°F	17	ft·lb/in²	
73°F	17	ft·lb/in²	
Instrumented Dart Impact (73°F, Total Energy)	177	in·lb	ASTM D3763
Thermal	**Nominal Value**	**Unit**	**Test Method**
Heat Deflection Temperature [9]			ISO 75-2/Bf
66 psi, Unannealed, 2.52 in Span	286	°F	
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed, 0.126 in	286	°F	
Heat Deflection Temperature [9]			ISO 75-2/Af
264 psi, Unannealed, 2.52 in Span	277	°F	
Vicat Softening Temperature	297	°F	ASTM D1525 [10]
Vicat Softening Temperature			
--	293	°F	ISO 306/B50
--	295	°F	ISO 306/B120
Ball Pressure Test (257°F)	Pass		IEC 60695-10-2
CLTE - Flow (-40 to 104°F)	1.7E-5	in/in/°F	ASTM E831
CLTE - Flow (73 to 176°F)	1.7E-5	in/in/°F	ISO 11359-2
CLTE - Transverse (-40 to 104°F)	3.9E-5	in/in/°F	ASTM E831
CLTE - Transverse (73 to 176°F)	3.9E-5	in/in/°F	ISO 11359-2
RTI Elec	266	°F	UL 746
RTI Imp	266	°F	UL 746
RTI Str	266	°F	UL 746
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	> 1.0E+15	ohm	IEC 60093
Volume Resistivity	> 1.0E+15	ohm·cm	IEC 60093

LEXAN™ 3412ECR resin

SABIC Innovative Plastics Asia Pacific - Polycarbonate

Electrical	Nominal Value	Unit	Test Method
Relative Permittivity			IEC 60250
50 Hz	3.30		
60 Hz	3.30		
1 MHz	3.30		
Dissipation Factor			IEC 60250
50 Hz	0.020		
60 Hz	0.020		
1 MHz	0.010		
Arc Resistance [11]	PLC 7		ASTM D495
Comparative Tracking Index (CTI)	PLC 3		UL 746
High Amp Arc Ignition (HAI)	PLC 3		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 3		UL 746
Hot-wire Ignition (HWI)	PLC 0		UL 746

Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.0591 in	V-0		
0.118 in	5VA		
Glow Wire Flammability Index (0.0394 in)	1760	°F	IEC 60695-2-12
Glow Wire Ignition Temperature (0.0394 in)	1520	°F	IEC 60695-2-13
Oxygen Index	40	%	ISO 4589-2

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	250	°F
Drying Time	3.0 to 4.0	hr
Drying Time, Maximum	48	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 to 60	%
Rear Temperature	510 to 550	°F
Middle Temperature	530 to 570	°F
Front Temperature	550 to 590	°F
Nozzle Temperature	540 to 580	°F
Processing (Melt) Temp	550 to 590	°F
Mold Temperature	160 to 200	°F
Back Pressure	50.0 to 100	psi
Screw Speed	40 to 70	rpm
Vent Depth	1.0E-3 to 3.0E-3	in

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SABIC Innovative Plastics Asia Pacific - Polycarbonate

Notes

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

[2] 0.20 in/min

[3] Type I, 0.20 in/min

[4] 0.051 in/min

[5] 0.079 in/min

[6] Yield

[7] 80*10*3 sp=62mm

[8] 80*10*3

[9] 80*10*4 mm

[10] Rate B (120°C/h), Loading 2 (50 N)

[11] Tungsten Electrode