

VALOX™ 357X resin

Monday, June 5, 2017

General Information

Product Description

VALOX 357X is an impact modified, flame retarded PBT+PC blend. Applications like bobbins, switches and enclosures.

General

Material Status	• Commercial: Active		
Availability	• Europe		
Additive	• Flame Retardant	• Impact Modifier	
Features	• Flame Retardant	• Impact Modified	
Uses	• Bobbins	• Housings	• Switches
RoHS Compliance	• RoHS Compliant		
Processing Method	• Injection Molding		

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.34	g/cm ³	ASTM D792
Density	1.34	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR)			ASTM D1238
250°C/5.0 kg	9.6	g/10 min	
265°C/5.0 kg	13	g/10 min	
266°C/5.0 kg	13	g/10 min	
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/5.0 kg	8.00	cm ³ /10min	
265°C/5.0 kg	10.0	cm ³ /10min	
Molding Shrinkage - Flow			Internal Method
-- ²	1.1 to 1.8	%	
3.20 mm	1.0 to 1.4	%	
Molding Shrinkage - Across Flow ²	0.90 to 1.8	%	Internal Method
Water Absorption (Saturation, 23°C)	0.50	%	ISO 62
Water Absorption (Equilibrium, 23°C, 50% RH)	0.15	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ³	2000	MPa	ASTM D638
Tensile Modulus	2200	MPa	ISO 527-2/1
Tensile Strength ⁴ (Yield)	50.0	MPa	ASTM D638
Tensile Stress (Yield)	50.0	MPa	ISO 527-2/50
Tensile Strength ⁴ (Break)	40.0	MPa	ASTM D638
Tensile Stress (Break)	40.0	MPa	ISO 527-2/50
Tensile Elongation ⁴ (Yield)	5.0	%	ASTM D638
Tensile Strain (Yield)	5.0	%	ISO 527-2/50

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Mechanical	Nominal Value	Unit	Test Method
Tensile Elongation ⁴ (Break)	30	%	ASTM D638
Tensile Strain (Break)	30	%	ISO 527-2/50
Flexural Modulus ⁵ (50.0 mm Span)	2100	MPa	ASTM D790
Flexural Modulus ⁶	2000	MPa	ISO 178
Flexural Stress ^{6,7}	80.0	MPa	ISO 178
Flexural Strength ⁵ (Yield, 50.0 mm Span)	78.0	MPa	ASTM D790
Taber Abrasion Resistance 1000 Cycles, 1000 g, CS-17 Wheel	33.0	mg	Internal Method
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ⁸	20	kJ/m ²	ISO 179/1eA
-30°C	20	kJ/m ²	ISO 179/2C
23°C ⁸	45	kJ/m ²	ISO 179/1eA
23°C	40	kJ/m ²	ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C ⁸	No Break		ISO 179/1eU
-30°C	No Break		ISO 179/2U
23°C ⁸	No Break		ISO 179/1eU
23°C	No Break		ISO 179/2U
Notched Izod Impact			ASTM D256
-30°C	150	J/m	
0°C	190	J/m	
23°C	500	J/m	
Notched Izod Impact Strength ⁹			ISO 180/1A
-30°C	10	kJ/m ²	
0°C	20	kJ/m ²	
23°C	40	kJ/m ²	
Unnotched Izod Impact			ASTM D4812
-30°C	No Break		
23°C	No Break		
Unnotched Izod Impact Strength ⁹			ISO 180/1U
-30°C	No Break		
23°C	No Break		
Instrumented Dart Impact (23°C, Total Energy)	35.0	J	ASTM D3763
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	115		ISO 2039-2
Ball Indentation Hardness (H 358/30)	115	MPa	ISO 2039-1
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 0.45 MPa, Unannealed, 3.20 mm	130	°C	ASTM D648

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Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed, 100 mm Span ¹⁰	135	°C	ISO 75-2/Be
0.45 MPa, Unannealed, 64.0 mm Span ¹¹	130	°C	ISO 75-2/Bf
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed, 3.20 mm	85.0	°C	
Heat Deflection Temperature			
1.8 MPa, Unannealed, 100 mm Span ¹⁰	85.0	°C	ISO 75-2/Ae
1.8 MPa, Unannealed, 64.0 mm Span ¹¹	85.0	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	180	°C	ASTM D1525 ¹²
--	145	°C	ASTM D1525 ¹³
Vicat Softening Temperature			
--	180	°C	ISO 306/A50
--	145	°C	ISO 306/B50
--	150	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
CLTE - Flow (-40 to 40°C)	9.2E-5	cm/cm/°C	ASTM E831
CLTE - Flow (23 to 80°C)	1.0E-4	cm/cm/°C	ISO 11359-2
CLTE - Transverse (-40 to 40°C)	8.4E-5	cm/cm/°C	ASTM E831
CLTE - Transverse (23 to 80°C)	1.0E-4	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.17	W/m/K	ISO 8302
RTI Elec	120	°C	UL 746
RTI Imp	120	°C	UL 746
RTI Str	140	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms·cm	ASTM D257
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Strength			ASTM D149
1.60 mm, in Oil	25	kV/mm	
3.20 mm, in Oil	17	kV/mm	
Electric Strength			IEC 60243-1
0.800 mm, in Oil	34	kV/mm	
1.60 mm, in Oil	25	kV/mm	
3.20 mm, in Oil	17	kV/mm	
Dielectric Constant (1 MHz)	3.00		ASTM D150
Relative Permittivity			IEC 60250
50 Hz	3.00		
60 Hz	3.00		
1 MHz	3.00		
Dissipation Factor (1 MHz)	0.013		ASTM D150

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Electrical	Nominal Value	Unit	Test Method
Dissipation Factor			IEC 60250
50 Hz	2.0E-3		
60 Hz	2.0E-3		
1 MHz	1.3E-3		
Arc Resistance ¹⁴	PLC 6		ASTM D495
Comparative Tracking Index (CTI)	PLC 3		UL 746
Comparative Tracking Index			IEC 60112
--	225	V	
Solution B	100	V	
High Amp Arc Ignition (HAI)	PLC 0		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 3		UL 746
Hot-wire Ignition (HWI)	PLC 3		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.75 mm	V-0		
2.5 mm	5VA		
Glow Wire Flammability Index (1.0 mm)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature			IEC 60695-2-13
1.0 mm	825	°C	
2.0 mm	725	°C	
3.0 mm	700	°C	
Oxygen Index	30	%	ISO 4589-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	310	Pa·s	ISO 11443

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	110 to 120	°C
Drying Time	2.0 to 4.0	hr
Suggested Max Moisture	0.020	%
Hopper Temperature	40 to 60	°C
Rear Temperature	230 to 245	°C
Middle Temperature	240 to 255	°C
Front Temperature	245 to 265	°C
Nozzle Temperature	240 to 260	°C
Processing (Melt) Temp	250 to 270	°C
Mold Temperature	40 to 100	°C

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Notes

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

² Tensile Bar

³ 50 mm/min

⁴ Type I, 50 mm/min

⁵ 1.3 mm/min

⁶ 2.0 mm/min

⁷ Yield

⁸ 80*10*4 sp=62mm

⁹ 80*10*4

¹⁰ 120*10*4 mm

¹¹ 80*10*4 mm

¹² Rate A (50°C/h), Loading 2 (50 N)

¹³ Rate B (120°C/h), Loading 2 (50 N)

¹⁴ Tungsten Electrode

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