

VALOX™ ENH4530 resin

Polybutylene Terephthalate
SABIC Innovative Plastics Europe

Message:
15% GF PBT, Non-Brominated & Non-Chlorinated Flame retardant

General Information			
UL YellowCard	E45329-100897478		
Filler / Reinforcement	Glass Fiber, 15% Filler by Weight		
Features	Bromine Free		
	Chlorine Free		
	Flame Retardant		
RoHS Compliance	RoHS Compliant		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.45	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (265°C/5.0 kg)	24	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/5.0 kg	17.0	cm ³ /10min	
265°C/5.0 kg	18.0	cm ³ /10min	
Molding Shrinkage - Flow ¹	0.30 to 0.80	%	Internal Method
Water Absorption			ISO 62
Saturation, 23°C	0.15	%	
Equilibrium, 23°C, 50% RH	0.070	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	98		ISO 2039-2
Ball Indentation Hardness (H 358/30)	128	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ²	7300	MPa	ASTM D638
--	7500	MPa	ISO 527-2/1
Tensile Strength			
Yield ³	80.0	MPa	ASTM D638
Yield	80.0	MPa	ISO 527-2/5
Break ⁴	80.0	MPa	ASTM D638
Break	80.0	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁵	2.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5

Break ⁶	3.0	%	ASTM D638
Break	3.0	%	ISO 527-2/5
Flexural Modulus			
50.0 mm Span ⁷	5800	MPa	ASTM D790
-- ⁸	6400	MPa	ISO 178
Flexural Stress			
--	130	MPa	ISO 178
Yield, 50.0 mm Span ⁹	120	MPa	ASTM D790
Break, 50.0 mm Span ¹⁰	120	MPa	ASTM D790
Flexural Strain at Break ¹¹	3.0	%	ISO 178
Filler Content	15	%	ASTM D229
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/2C
-30°C	6.0	kJ/m ²	
23°C	6.0	kJ/m ²	
Charpy Unnotched Impact Strength			ISO 179/2U
-30°C	25	kJ/m ²	
23°C	35	kJ/m ²	
Notched Izod Impact			
-30°C	50	J/m	ASTM D256
0°C	50	J/m	ASTM D256
23°C	50	J/m	ASTM D256
-30°C ¹²	6.0	kJ/m ²	ISO 180/1A
0°C ¹³	6.0	kJ/m ²	ISO 180/1A
23°C ¹⁴	6.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	360	J/m	ASTM D4812
23°C	400	J/m	ASTM D4812
-30°C ¹⁵	23	kJ/m ²	ISO 180/1U
23°C ¹⁶	30	kJ/m ²	ISO 180/1U
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed, 3.20 mm	220	°C	ASTM D648
0.45 MPa, Unannealed, 64.0 mm Span ¹⁷	220	°C	ISO 75-2/Bf
1.8 MPa, Unannealed, 3.20 mm	200	°C	ASTM D648
1.8 MPa, Unannealed, 64.0 mm Span ¹⁸	200	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	217	°C	ASTM D1525 ¹⁹
--	205	°C	ASTM D1525, ISO 306/B50, ISO 306/B120 ²⁰
--	220	°C	ISO 306/A50
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2

CLTE			ISO 11359-2
Flow : -40 to 40°C	2.9E-5	cm/cm/°C	
Flow : 23 to 150°C	4.2E-5	cm/cm/°C	
Transverse : -40 to 40°C	7.0E-5	cm/cm/°C	
Transverse : 23 to 150°C	1.7E-4	cm/cm/°C	
RTI Elec	140	°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, IEC 60093
Dielectric Strength			ASTM D149, IEC 60243-1
0.800 mm, in Oil	28	kV/mm	
1.60 mm, in Oil	21	kV/mm	
3.20 mm, in Oil	17	kV/mm	
Dielectric Constant (1 MHz)	3.70		ASTM D150, IEC 60250
Dissipation Factor (1 MHz)	0.15		ASTM D150, IEC 60250
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.800 mm)	V-0		UL 94
Glow Wire Flammability Index (3.00 mm)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (3.00 mm)	750	°C	IEC 60695-2-13
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	150	Pa·s	ISO 11443
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	40.0 to 60.0	°C	
Rear Temperature	230 to 240	°C	
Middle Temperature	235 to 250	°C	
Front Temperature	240 to 260	°C	
Nozzle Temperature	230 to 255	°C	
Processing (Melt) Temp	245 to 260	°C	
Mold Temperature	40.0 to 100	°C	
NOTE			
1.	Tensile Bar		
2.	5.0 mm/min		
3.	Type I, 5.0 mm/min		
4.	Type I, 5.0 mm/min		
5.	Type I, 5.0 mm/min		
6.	Type I, 5.0 mm/min		
7.	1.3 mm/min		

8.	2.0 mm/min
9.	1.3 mm/min
10.	1.3 mm/min
11.	2 mm/min
12.	80*10*4
13.	80*10*4
14.	80*10*4
15.	80*10*4
16.	80*10*4
17.	80*10*4 mm
18.	80*10*4 mm
19.	Rate A (50°C/h), Loading 2 (50 N)
20.	Rate B (120°C/h), Loading 2 (50 N)

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