

VALOX™ ENH4550 resin

Polybutylene Terephthalate
SABIC Innovative Plastics Europe

Message:
25% GF reinforced, Non-Brominated & Non-Chlorinated Flame Retardant, PBT resin.

General Information			
Filler / Reinforcement	Glass fiber reinforced material, 25% filler by weight		
Features	Chlorine Free		
	Bromine-free		
	Flame retardancy		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.53	g/cm ³	ASTM D792
--	1.52	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (250°C/5.0 kg)	27	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (250°C/5.0 kg)	20.0	cm ³ /10min	ISO 1133
Molding Shrinkage			Internal method
Flow ¹	0.10 - 0.50	%	Internal method
Flow: 3.20mm	0.10 - 0.50	%	Internal method
Transverse flow ²	0.60 - 1.2	%	Internal method
Transverse flow: 3.20mm	0.50 - 1.1	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.23	%	ISO 62
Equilibrium, 23°C, 50% RH	0.060	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ³	9900	MPa	ASTM D638
--	10400	MPa	ISO 527-2/1
Tensile Strength			
Yield ⁴	105	MPa	ASTM D638
Yield	112	MPa	ISO 527-2/5
Fracture ⁵	105	MPa	ASTM D638
Fracture	112	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁶	2.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5

Fracture ⁷	2.0	%	ASTM D638
Fracture	2.0	%	ISO 527-2/5
Flexural Modulus			
50.0mm span ⁸	9100	MPa	ASTM D790
-- ⁹	9400	MPa	ISO 178
Flexural Stress			
--	170	MPa	ISO 178
Yield, 50.0mm span ¹⁰	161	MPa	ASTM D790
Flexural Strain at Break ¹¹	2.0	%	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C	7.0	kJ/m ²	ISO 179/2C
23°C ¹²	5.0	kJ/m ²	ISO 179/1eA
23°C	7.0	kJ/m ²	ISO 179/2C
Charpy Unnotched Impact Strength			ISO 179/2U
-30°C	33	kJ/m ²	ISO 179/2U
23°C	36	kJ/m ²	ISO 179/2U
Notched Izod Impact			
-30°C	59	J/m	ASTM D256
23°C	62	J/m	ASTM D256
-30°C ¹³	7.0	kJ/m ²	ISO 180/1A
23°C ¹⁴	7.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	470	J/m	ASTM D4812
23°C	520	J/m	ASTM D4812
-30°C ¹⁵	29	kJ/m ²	ISO 180/1U
23°C ¹⁶	33	kJ/m ²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	6.50	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	216	°C	ASTM D648
0.45 MPa, unannealed, 64.0mm span ¹⁷	219	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	204	°C	ASTM D648
1.8 MPa, unannealed, 64.0mm span ¹⁸	201	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	202	°C	ASTM D1525 ¹⁹
--	215	°C	ASTM D1525 ²⁰
--	219	°C	ISO 306/A50
--	206	°C	ISO 306/B50, ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			

Flow: -40 to 40°C	2.7E-5	cm/cm/°C	ASTM E831
Flow: -40 to 150°C	2.2E-5	cm/cm/°C	ASTM E831
Flow: -40 to 40°C	3.0E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 80°C	2.2E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	7.1E-5	cm/cm/°C	ASTM E831
Lateral: -40 to 150°C	7.7E-5	cm/cm/°C	ASTM E831
Lateral: -40 to 40°C	7.6E-5	cm/cm/°C	ISO 11359-2
Lateral: 23 to 80°C	9.1E-5	cm/cm/°C	ISO 11359-2
RTI Elec	130	°C	UL 746
RTI Imp	140	°C	UL 746
RTI	140	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	1.0E+15 - 1.0E+16	ohms · cm	ASTM D257, IEC 60093
Dielectric Strength			ASTM D149
3.20 mm, in Air	21	kV/mm	ASTM D149
3.20 mm, in Oil	21	kV/mm	ASTM D149
Arc Resistance ²¹	PLC 6		ASTM D495
Comparative Tracking Index (CTI)	PLC 2		UL 746
Comparative Tracking Index	300	V	IEC 60112
High Amp Arc Ignition (HAI)	PLC 0		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 0		UL 746
Hot-wire Ignition (HWI)	PLC 0		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.750 mm	V-0		UL 94
3.00 mm	5VA		UL 94
Glow Wire Flammability Index (0.750 mm)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature			IEC 60695-2-13
0.800 mm	775	°C	IEC 60695-2-13
3.00 mm ²²	775	°C	IEC 60695-2-13
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (250°C, 1500 sec ⁻¹)	210	Pa · s	ISO 11443
Injection	Nominal Value	Unit	
Drying Temperature	110 - 120	°C	
Drying Time	2.0 - 4.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	40.0 - 60.0	°C	
Rear Temperature	230 - 240	°C	
Middle Temperature	235 - 250	°C	
Front Temperature	240 - 260	°C	
Nozzle Temperature	230 - 255	°C	
Processing (Melt) Temp	245 - 260	°C	

Mold Temperature	40.0 - 100	°C
NOTE		
1.	Tensile Bar	
2.	Tensile Bar	
3.	5.0 mm/min	
4.	Type 1, 5.0 mm/min	
5.	Type 1, 5.0 mm/min	
6.	Type 1, 5.0 mm/min	
7.	Type 1, 5.0 mm/min	
8.	1.3 mm/min	
9.	2.0 mm/min	
10.	1.3 mm/min	
11.	2 mm/min	
12.	80*10*4 sp=62mm	
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.	标准 B (120°C/h), 载荷2 (50N)	
20.	速率 A (50°C/h), 载荷2 (50N)	
21.	Tungsten electrode	
22.	by VDE	

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