

VALOX™ ENH4560 resin

Polybutylene Terephthalate
SABIC Innovative Plastics Europe

Message:

VALOX ENH4560 resin is a non-brominated/non-chlorinated flame retardant product based on VALOX PBT resin.

General Information			
UL YellowCard	E207780-100737680		
Additive	Flame retardancy		
Recycled Content	Yes		
Features	Chlorine Free		
	Bromine-free		
	Flame retardancy		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.56	g/cm ³	ASTM D792, ISO 1183
Melt Volume-Flow Rate (MVR) (250°C/5.0 kg)	16.0	cm ³ /10min	ISO 1133
Molding Shrinkage			Internal method
Flow: 3.20mm	0.28	%	Internal method
Transverse flow: 3.20mm	0.57	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.23	%	ISO 62
Equilibrium, 23°C, 50% RH	0.090	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	11000	MPa	ASTM D638
--	11000	MPa	ISO 527-2/1
Tensile Strength			
Yield ²	105	MPa	ASTM D638
Yield	108	MPa	ISO 527-2/5
Fracture ³	105	MPa	ASTM D638
Fracture	108	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁴	2.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5
Fracture ⁵	2.0	%	ASTM D638
Fracture	2.0	%	ISO 527-2/5
Flexural Modulus			

50.0mm span ⁶	9600	MPa	ASTM D790
-- ⁷	10000	MPa	ISO 178
Flexural Stress			
--	175	MPa	ISO 178
Yield, 50.0mm span ⁸	165	MPa	ASTM D790
Fracture, 50.0mm span ⁹	165	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			
-30°C	55	J/m	ASTM D256
23°C	72	J/m	ASTM D256
-30°C ¹⁰	6.0	kJ/m ²	ISO 180/1A
23°C ¹¹	7.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
23°C	570	J/m	ASTM D4812
23°C ¹²	37	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			
1.8 MPa, unannealed, 3.20mm	200	°C	ASTM D648
1.8 MPa, unannealed, 6.40mm	210	°C	ASTM D648
1.8 MPa, unannealed, 64.0mm span ¹³	205	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	195	°C	ASTM D1525, ISO 306/B50 ¹⁴
--	205	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			ASTM E831
Flow: -40 to 40°C	2.4E-5	cm/cm/°C	ASTM E831
Lateral: -40 to 40°C	8.0E-5	cm/cm/°C	ASTM E831
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	15	ohms · cm	ASTM D257
Comparative Tracking Index (CTI)	PLC 0		UL 746
Comparative Tracking Index	600	V	IEC 60112
High Amp Arc Ignition (HAI)	PLC 0		UL 746
Hot-wire Ignition (HWI)	PLC 0		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.800 mm	V-0		UL 94
3.00 mm	5VB		UL 94
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (3.00 mm)	800	°C	IEC 60695-2-13
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.	5.0 mm/min
2.	Type 1, 5.0 mm/min
3.	Type 1, 5.0 mm/min
4.	Type 1, 5.0 mm/min
5.	Type 1, 5.0 mm/min
6.	1.3 mm/min
7.	2.0 mm/min
8.	1.3 mm/min
9.	1.3 mm/min
10.	80*10*4
11.	80*10*4
12.	80*10*4
13.	80*10*4 mm
14.	标准 B (120°C/h), 载荷2 (50N)

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