

VALOX™ 457 resin

Polybutylene Terephthalate

SABIC Innovative Plastics

Message:

VALOX 457 is a 6.5% glass fibre reinforced flame retarded PBT injection moulding resin. Applications: electrical and appliances industries.

General Information			
UL YellowCard	E45329-236603		
Filler / Reinforcement	Glass fiber reinforced material, 6.5% filler by weight		
Additive	Flame retardancy		
Features	Flame retardancy		
Uses	Electrical/Electronic Applications		
	Home appliance components		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.45	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (266°C/5.0 kg)	65	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	11.0	cm³/10min	ISO 1133
250°C/5.0 kg	30.0	cm³/10min	ISO 1133
265°C/5.0 kg	55.0	cm³/10min	ISO 1133
Molding Shrinkage ¹			Internal method
Flow	0.80 - 1.0	%	Internal method
Transverse flow	0.90 - 1.2	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.28	%	ISO 62
Equilibrium, 23°C, 50% RH	0.060	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	120		ISO 2039-2
Ball Indentation Hardness (H 358/30)	180	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ²	4100	MPa	ASTM D638
--	4200	MPa	ISO 527-2/1
Tensile Strength			
Yield ³	75.0	MPa	ASTM D638
Yield	75.0	MPa	ISO 527-2/5
Fracture ⁴	75.0	MPa	ASTM D638

Fracture	75.0	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁵	3.0	%	ASTM D638
Yield	3.0	%	ISO 527-2/5
Fracture ⁶	3.0	%	ASTM D638
Fracture	3.0	%	ISO 527-2/5
Flexural Modulus ⁷	3700	MPa	ISO 178
Flexural Stress	120	MPa	ISO 178
Flexural Strain at Break ⁸	4.0	%	ISO 178
Filler Content	7.0	%	ASTM D229
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ⁹	6.0	kJ/m ²	ISO 179/1eA
-30°C	3.0	kJ/m ²	ISO 179/2C
23°C ¹⁰	7.0	kJ/m ²	ISO 179/1eA
23°C	4.0	kJ/m ²	ISO 179/2C
Charpy Unnotched Impact Strength ¹¹			ISO 179/1eU, ISO 179/2U
-30°C	30	kJ/m ²	ISO 179/1eU, ISO 179/2U
23°C	30	kJ/m ²	ISO 179/1eU, ISO 179/2U
Notched Izod Impact			
-30°C	30	J/m	ASTM D256
0°C	30	J/m	ASTM D256
23°C	30	J/m	ASTM D256
-30°C ¹²	3.0	kJ/m ²	ISO 180/1A
0°C ¹³	3.0	kJ/m ²	ISO 180/1A
23°C ¹⁴	3.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	320	J/m	ASTM D4812
23°C	350	J/m	ASTM D4812
-30°C ¹⁵	25	kJ/m ²	ISO 180/1U
23°C ¹⁶	25	kJ/m ²	ISO 180/1U
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	200	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ¹⁷	200	°C	ISO 75-2/Be
0.45 MPa, unannealed, 64.0mm span ¹⁸	200	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	145	°C	ASTM D648
1.8 MPa, unannealed, 100 mm span ¹⁹	140	°C	ISO 75-2/Ae
1.8 MPa, unannealed, 64.0mm span ²⁰	145	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	188	°C	ASTM D1525 ²¹

--	220	°C	ASTM D1525, ISO 306/A50 14 ²²
--	190	°C	ISO 306/B50
--	210	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			ISO 11359-2
Flow: -40 to 40°C	5.7E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 80°C	8.0E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 150°C	6.6E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	8.8E-5	cm/cm/°C	ISO 11359-2
Lateral: 23 to 80°C	1.0E-4	cm/cm/°C	ISO 11359-2
Horizontal: 23 to 150°C	1.3E-4	cm/cm/°C	ISO 11359-2
RTI Elec	120	°C	UL 746
RTI Imp	120	°C	UL 746
RTI	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			
1.60 mm, in Oil	22	kV/mm	ASTM D149
3.20 mm, in Oil	15	kV/mm	ASTM D149
0.800mm, in oil	29	kV/mm	IEC 60243-1
1.60mm, in oil	22	kV/mm	IEC 60243-1
3.20mm, in oil	15	kV/mm	IEC 60243-1
Dielectric Constant			
1 MHz	3.00		ASTM D150, IEC 60250
50 Hz	3.00		IEC 60250
60 Hz	3.00		IEC 60250
100 Hz	3.50		IEC 60250
Dissipation Factor			
1 MHz	0.020		ASTM D150, IEC 60250
50 Hz	2.0E-3		IEC 60250
60 Hz	2.0E-3		IEC 60250
100 Hz	2.0E-3		IEC 60250
Comparative Tracking Index (CTI)	PLC 3		UL 746
Comparative Tracking Index	175	V	IEC 60112
High Amp Arc Ignition (HAI)	PLC 3		UL 746
High Voltage Arc Resistance to Ignition (HVAR)	PLC 7		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 4		UL 746
Hot-wire Ignition (HWI)	PLC 3		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94

0.710 mm	V-0		UL 94
3.00 mm	5VA		UL 94
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Oxygen Index	30	%	ISO 4589-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	190	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 - 245	°C	
Middle Temperature	240 - 255	°C	
Front Temperature	245 - 265	°C	
Nozzle Temperature	240 - 260	°C	
Processing (Melt) Temp	250 - 270	°C	
Mold Temperature	40.0 - 100	°C	
NOTE			
1.	Tensile Bar		
2.	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.	Type 1, 5.0 mm/min		
7.	2.0 mm/min		
8.	2 mm/min		
9.	80*10*4 sp=62mm		
10.	80*10*4 sp=62mm		
11.	80*10*4 sp=62mm		
12.	80*10*4		
13.	80*10*4		
14.	80*10*4		
15.	80*10*4		
16.	80*10*4		
17.	120*10*4 mm		
18.	80*10*4 mm		
19.	120*10*4 mm		
20.	80*10*4 mm		
21.	标准 B (120°C/h), 载荷2 (50N)		
22.	速率 A (50°C/h), 载荷2 (50N)		

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