

VALOX™ VX5022 resin

Polybutylene Terephthalate
SABIC Innovative Plastics Europe

Message:

VALOX VX5022 is a 20% glass fibre reinforced PBT+PC blend with low warpage characteristics. This grade is 5021 with reduced warpage.

General Information			
Filler / Reinforcement	Glass Fiber,20% Filler by Weight		
Features	Low Warpage		
RoHS Compliance	RoHS Compliant		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.39	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR)			ASTM D1238
250°C/2.16 kg	16	g/10 min	
265°C/5.0 kg	50	g/10 min	
266°C/5.0 kg	50	g/10 min	
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	13.0	cm ³ /10min	
250°C/5.0 kg	28.0	cm ³ /10min	
265°C/5.0 kg	40.0	cm ³ /10min	
Molding Shrinkage			Internal Method
Flow ¹	0.30 to 0.80	%	
Flow : 3.20 mm	0.30 to 0.50	%	
Across Flow ²	0.50 to 0.90	%	
Water Absorption			ISO 62
Saturation, 23°C	0.10	%	
Equilibrium, 23°C, 50% RH	0.060	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	122		ISO 2039-2
Ball Indentation Hardness (H 358/30)	205	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ³	7300	MPa	ASTM D638
--	7100	MPa	ISO 527-2/1
Tensile Strength			
Yield ⁴	125	MPa	ASTM D638
Yield	110	MPa	ISO 527-2/5
Break ⁵	125	MPa	ASTM D638
Break	110	MPa	ISO 527-2/5

Tensile Elongation			
Yield ⁶	3.0	%	ASTM D638
Yield	3.0	%	ISO 527-2/5
Break ⁷	3.0	%	ASTM D638
Break	3.0	%	ISO 527-2/5
Flexural Modulus			
50.0 mm Span ⁸	5800	MPa	ASTM D790
-- ⁹	6300	MPa	ISO 178
Flexural Stress			
--	150	MPa	ISO 178
Yield, 50.0 mm Span ¹⁰	145	MPa	ASTM D790
Flexural Strain at Break ¹¹	3.0	%	ISO 178
Filler Content	20	%	ASTM D229
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ¹²	5.5	kJ/m ²	ISO 179/1eA
-30°C	9.0	kJ/m ²	ISO 179/2C
23°C ¹³	6.5	kJ/m ²	ISO 179/1eA
23°C	9.0	kJ/m ²	ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C ¹⁴	40	kJ/m ²	ISO 179/1eU
-30°C	50	kJ/m ²	ISO 179/2U
23°C ¹⁵	40	kJ/m ²	ISO 179/1eU
23°C	55	kJ/m ²	ISO 179/2U
Notched Izod Impact			
-30°C	80	J/m	ASTM D256
0°C	80	J/m	ASTM D256
23°C	80	J/m	ASTM D256
-30°C ¹⁶	6.0	kJ/m ²	ISO 180/1A
0°C ¹⁷	7.0	kJ/m ²	ISO 180/1A
23°C ¹⁸	7.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	650	J/m	ASTM D4812
23°C	650	J/m	ASTM D4812
-30°C ¹⁹	35	kJ/m ²	ISO 180/1U
23°C ²⁰	40	kJ/m ²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	65.0	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed, 3.20 mm	180	°C	ASTM D648
0.45 MPa, Unannealed, 64.0 mm Span ²¹	180	°C	ISO 75-2/Bf

1.8 MPa, Unannealed, 3.20 mm	120	°C	ASTM D648
1.8 MPa, Unannealed, 64.0 mm Span ²²	120	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	200	°C	ASTM D1525, ISO 306/A50 12 ²³
--	145	°C	ASTM D1525, ISO 306/B50, ISO 306/B120 ²⁴
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
CLTE			
Flow : -40 to 40°C	4.0E-5	cm/cm/°C	ASTM E831
Flow : -40 to 40°C	2.5E-5	cm/cm/°C	ISO 11359-2
Flow : 23 to 60°C	4.0E-5	cm/cm/°C	ISO 11359-2
Flow : 23 to 80°C	4.0E-5	cm/cm/°C	ISO 11359-2
Flow : 23 to 150°C	2.4E-5	cm/cm/°C	ISO 11359-2
Transverse : -40 to 40°C	1.0E-4	cm/cm/°C	ASTM E831
Transverse : -40 to 40°C	6.9E-5	cm/cm/°C	ISO 11359-2
Transverse : 23 to 60°C	1.0E-4	cm/cm/°C	ISO 11359-2
Transverse : 23 to 80°C	1.0E-4	cm/cm/°C	ISO 11359-2
Transverse : 23 to 150°C	1.1E-4	cm/cm/°C	ISO 11359-2
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	31	kV/mm	
1.60 mm, in Oil	28	kV/mm	
3.20 mm, in Oil	16	kV/mm	
Dielectric Constant			
1 MHz	3.30		ASTM D150, IEC 60250
50 Hz	3.10		IEC 60250
60 Hz	3.10		IEC 60250
100 Hz	3.30		IEC 60250
Dissipation Factor			
1 MHz	0.014		ASTM D150, IEC 60250
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
100 Hz	1.0E-3		IEC 60250
Comparative Tracking Index			
--	200	V	
Solution B	100	V	
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 (1.60 mm, Testing by SABIC)	HB		UL 94

Glow Wire Flammability Index			IEC 60695-2-12
1.00 mm	750	°C	
2.00 mm	850	°C	
Oxygen Index	23	%	ISO 4589-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	215	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 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	40.0 to 100	°C	
NOTE			
1.	Tensile Bar		
2.	Tensile Bar		
3.	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.	Type I, 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 sp=62mm		
14.	80*10*4 sp=62mm		
15.	80*10*4 sp=62mm		
16.	80*10*4		
17.	80*10*4		
18.	80*10*4		
19.	80*10*4		
20.	80*10*4		
21.	80*10*4 mm		
22.	80*10*4 mm		
23.	Rate A (50°C/h), Loading 2 (50 N)		
24.	Rate B (120°C/h), Loading 2 (50 N)		

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