VALOX™ 4012G resin

Polybutylene Terephthalate

SABIC Innovative Plastics Europe

Message:

VALOX 4012G is a 10% glass fibre reinforced PBT injection moulding resin with excellent mechanical properties. Applications: connectors. This grade is a 4012 with improved cycle time and ductility.

General Information			
Filler / Reinforcement	Glass Fiber,10% Filler by Weight		
Features	Ductile Fast Molding Cycle		
Uses	Connectors		
RoHS Compliance	RoHS Compliant		
Processing Method	Injection Molding		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	1.35	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR)			ASTM D1238
250°C/1.2 kg	10	g/10 min	
266°C/5.0 kg	90	g/10 min	
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/1.2 kg	9.00	cm³/10min	
250°C/5.0 kg	50.0	cm³/10min	
265°C/5.0 kg	80.0	cm³/10min	
Molding Shrinkage			Internal Method
Flow [1]	0.60 to 0.90	%	
Flow : 3.20 mm	0.60 to 1.6	%	
Across Flow [2]	0.70 to 1.0	%	
Water Absorption			ISO 62
Saturation, 23°C	0.20	%	
Equilibrium, 23°C, 50% RH	0.070	%	
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness (R-Scale)	120		ISO 2039-2
Ball Indentation Hardness (H 358/30)	110	MPa	ISO 2039-1
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			
-- [3]	4400	MPa	ASTM D638
--	4500	MPa	ISO 527-2/1
Tensile Strength			
Yield [4]	80.0	MPa	ASTM D638

Yield	80.0	MPa	ISO 527-2/5
Break [5]	80.0	MPa	ASTM D638
Break	80.0	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]	3800	MPa	ASTM D790
-- [9]	3800	MPa	ISO 178
Flexural Stress			
--	125	MPa	ISO 178
--	120	MPa	ISO 178
Yield, 50.0 mm Span [10]	120	MPa	ASTM D790
Break, 50.0 mm Span [11]	120	MPa	ASTM D790
Flexural Strain at Break [12]	5.0	%	ISO 178
Filler Content	10	%	ASTM D229
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength			
-30°C [13]	6.0	kJ/m²	ISO 179/1eA, ISO 179/2C
23°C [14]	7.0	kJ/m²	ISO 179/1eA
23°C	6.0	kJ/m²	ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C [15]	45	kJ/m²	ISO 179/1eU
-30°C	33	kJ/m²	ISO 179/2U
23°C [16]	45	kJ/m²	ISO 179/1eU
23°C	33	kJ/m²	ISO 179/2U
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 [17]	5.0	kJ/m²	ISO 180/1A
0°C [18]	5.0	kJ/m²	ISO 180/1A
23°C [19]	5.0	kJ/m²	ISO 180/1A
Unnotched Izod Impact			
-30°C	380	J/m	ASTM D4812
23°C	380	J/m	ASTM D4812
-30°C [20]	30	kJ/m²	ISO 180/1U
23°C [21]	35	kJ/m²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	4.00	J	ASTM D3763

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed, 3.20 mm	215	°C	ASTM D648
0.45 MPa, Unannealed, 100 mm Span [22]	215	°C	ISO 75-2/Be
0.45 MPa, Unannealed, 64.0 mm Span [23]	215	°C	ISO 75-2/Bf
1.8 MPa, Unannealed, 3.20 mm	190	°C	ASTM D648
1.8 MPa, Unannealed, 100 mm Span [24]	170	°C	ISO 75-2/Ae
1.8 MPa, Unannealed, 64.0 mm Span [25]	185	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	220	°C	ASTM D1525, ISO 306/A50 14 [26]
--	205	°C	ASTM D1525, ISO 306/B50 15 [27]
--	200	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
CLTE			
Flow : -40 to 40°C	6.0E-5	cm/cm/°C	ASTM E831
Flow : -40 to 40°C	4.6E-5	cm/cm/°C	ISO 11359-2
Flow : 23 to 80°C	6.0E-5	cm/cm/°C	ISO 11359-2
Flow : 23 to 150°C	4.8E-5	cm/cm/°C	ISO 11359-2
Transverse : -40 to 40°C	8.0E-5	cm/cm/°C	ASTM E831
Transverse : -40 to 40°C	8.2E-5	cm/cm/°C	ISO 11359-2
Transverse : 23 to 80°C	8.0E-5	cm/cm/°C	ISO 11359-2
Transverse : 23 to 150°C	2.1E-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	30	kV/mm	
1.60 mm, in Oil	23	kV/mm	
3.20 mm, in Oil	18	kV/mm	
Dielectric Constant			
1 MHz	3.40		ASTM D150, IEC 60250
50 Hz	3.10		IEC 60250
60 Hz	3.10		IEC 60250
Dissipation Factor			
1 MHz	0.015		ASTM D150, IEC 60250
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
Comparative Tracking Index			IEC 60112
--	325	V	
Solution B	150	V	
Flammability	**Nominal Value**	**Unit**	**Test Method**

Flame Rating (1.60 mm, Testing by SABIC)	HB		UL 94
Glow Wire Flammability Index (1.00 mm)	750	°C	IEC 60695-2-12
Glow Wire Ignition Temperature			IEC 60695-2-13
1.00 mm	775	°C	
1.50 mm	800	°C	
2.00 mm	775	°C	
3.00 mm	750	°C	
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec^-1)	110	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.	1.3 mm/min
12.	2 mm/min
13.	80*10*4 sp=62mm
14.	80*10*4 sp=62mm
15.	80*10*4 sp=62mm
16.	80*10*4 sp=62mm
17.	80*10*4
18.	80*10*4
19.	80*10*4
20.	80*10*4
21.	80*10*4

22.	120*10*4 mm
23.	80*10*4 mm
24.	120*10*4 mm
25.	80*10*4 mm
26.	Rate A (50°C/h), Loading 2 (50 N)
27.	Rate B (120°C/h), Loading 2 (50 N)

Recommended distributors for this material

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