Product Comparison

PROSPECTOR®
www.ulprospector.com

Technical Data

Product Description	
VALOX™ Resin 325 - Europe	General purpose, unreinforced, improved processing. Applications like sprinklers and nozzles, pumps, door handle, tank covers, pens, pencils etc.
Generic PBT	This data represents typical values that have been calculated from all products classified as: Generic PBT This information is provided for comparative purposes only.

General	VALOX™ Resin 325 - Europe	Generic PBT
Manufacturer / Supplier	• SABIC	• Generic
Generic Symbol	• PBT	• PBT
Material Status	• Commercial: Active	• Commercial: Active
UL Yellow Card [1]	• E45329-236588	--
Search for UL Yellow Card	• SABIC • VALOX™ Resin	--
Availability	• Europe	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Uses	• Appliances • Automotive Exterior Parts • Automotive Interior Parts • Automotive Lighting • Automotive Under the Hood • Construction Applications • Decorative Parts • Electrical Parts • Electrical/Electronic Applications • Electronic Displays • Fluid Handling • Lawn & Garden Equipment • Lighting Applications • Material Handling • Medical Devices • Medical/Healthcare Applications • Military/Defense Applications • Non-specific Food Applications • Outdoor Applications • Packaging • Personal Care • Surgical Instruments • Water Management	--
Also Available In	• Asia Pacific • Latin America • North America	• Asia Pacific • Europe • Latin America • North America

Physical	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Density / Specific Gravity				
--	1.31	1.26 to 1.55	g/cm³	ASTM D792
--	1.31	1.29 to 1.32	g/cm³	ISO 1183
--	--	1.31	g/cm³	ASTM D1505
Apparent (Bulk) Density	--	0.80 to 0.81	g/cm³	ISO 60

Form No. TDS-31787-118479-en
Document Created: Friday, June 14, 2024

Physical	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Melt Mass-Flow Rate (MFR)				
250°C/2.16 kg	--	8.0 to 56	g/10 min	ASTM D1238
265°C/5.0 kg	50	--	g/10 min	ASTM D1238
266°C/5.0 kg	50	--	g/10 min	ASTM D1238
250°C/2.16 kg	--	3.0 to 72	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)				ISO 1133
250°C/2.16 kg	14	3.7 to 52	cm³/10min	
250°C/5.0 kg	30	--	cm³/10min	
265°C/5.0 kg	48	--	cm³/10min	
Molding Shrinkage				
Flow	--	0.54 to 2.1	%	ASTM D955
Across Flow	--	0.99 to 2.0	%	ASTM D955
--	--	0.19 to 2.3	%	ISO 294-4
Across Flow [3]	0.90 to 1.8	--	%	Internal Method
Flow [3]	1.1 to 2.0	--	%	Internal Method
Water Absorption				
24 hr	--	0.050 to 0.11	%	ASTM D570
24 hr, 23°C	--	0.040 to 0.20	%	ISO 62
Saturation	--	0.20 to 0.50	%	ASTM D570
Saturation, 23°C	0.34	0.077 to 0.52	%	ISO 62
Equilibrium	--	0.070 to 0.090	%	ASTM D570
Equilibrium, 23°C, 50% RH	0.080	0.054 to 0.27	%	ISO 62
Viscosity Number (Reduced Viscosity)	--	0.6 to 160.0	ml/g	ISO 1628
Viscosity Number	--	1.23 to 160	cm³/g	ISO 307
Intrinsic Viscosity	--	0.74 to 1.3	dl/g	

Mechanical	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Tensile Modulus				
--	--	2110 to 2860	MPa	ASTM D638
-- [4]	2400	--	MPa	ASTM D638
--	--	2100 to 2880	MPa	ISO 527-1
--	2400	--	MPa	ISO 527-1/1
Tensile Strength				
Yield [5]	51.0	--	MPa	ASTM D638
Yield	--	45.5 to 120	MPa	ASTM D638
Yield	--	38.4 to 61.7	MPa	ISO 527-2
Yield	55.0	--	MPa	ISO 527-2/50
Break	--	22.0 to 142	MPa	ASTM D638
Break [5]	35.0	--	MPa	ASTM D638
Break	--	33.6 to 60.6	MPa	ISO 527-2
Break	55.0	--	MPa	ISO 527-2/50
--	--	44.4 to 60.4	MPa	ASTM D638
--	--	31.5 to 60.3	MPa	ISO 527-2

Form No. TDS-31787-118479-en
Document Created: Friday, June 14, 2024

Mechanical	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Tensile Elongation				
Yield	--	1.0 to 16	%	ASTM D638
Yield [5]	3.0	--	%	ASTM D638
Yield	--	1.8 to 11	%	ISO 527-2
Yield	3.0	--	%	ISO 527-2/50
Break	--	0.50 to 110	%	ASTM D638
Break [5]	250	--	%	ASTM D638
Break	--	1.6 to 23	%	ISO 527-2
Break	100	--	%	ISO 527-2/50
Nominal Tensile Strain at Break	--	2.5 to 52	%	ISO 527-2
Tensile Creep Modulus				ISO 899-1
1 hr	--	2400	MPa	
1000 hr	--	1580	MPa	
Flexural Modulus				
--	--	1700 to 2980	MPa	ASTM D790
--	--	2090 to 2920	MPa	ISO 178
-- [6]	2100	--	MPa	ISO 178
Flexural Strength				
--	--	58.3 to 98.9	MPa	ASTM D790
--	--	8.00 to 113	MPa	ISO 178
-- [6, 7]	80.0	--	MPa	ISO 178
Yield	--	74.6 to 85.8	MPa	ASTM D790
Break	--	2.00 to 205	MPa	ASTM D790
Compressive Strength	--	19.3 to 124	MPa	ASTM D695
Poisson's Ratio	--	0.38		ASTM E132
Coefficient of Friction	--	0.12 to 0.41		ASTM D1894
Taber Abrasion Resistance				
--	--	9.00 to 55.2	mg	ASTM D1044
1000 Cycles, 1000 g, CS-17 Wheel	9.00	--	mg	Internal Method

Impact	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Charpy Notched Impact Strength				
--	--	1.5 to 10	kJ/m²	ISO 179
-30°C	5.0	--	kJ/m²	ISO 179/2C
23°C	6.0	--	kJ/m²	ISO 179/2C
Charpy Unnotched Impact Strength				
--	--	12 to 200	kJ/m²	ISO 179
-30°C	No Break	--		ISO 179/2U
23°C	No Break	--		ISO 179/2U

Impact	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Notched Izod Impact				
--	--	29 to 100	J/m	ASTM D256
-30°C	50	--	J/m	ASTM D256
0°C	50	--	J/m	ASTM D256
23°C	53	--	J/m	ASTM D256
--	--	2.0 to 11	kJ/m²	ISO 180
-30°C [8]	6.0	--	kJ/m²	ISO 180/1A
0°C [8]	6.0	--	kJ/m²	ISO 180/1A
23°C [8]	6.0	--	kJ/m²	ISO 180/1A
Notched Izod Impact (Area)	--	3.30 to 40.0	kJ/m²	ASTM D256
Unnotched Izod Impact				
--	--	23 to 3200	J/m	ASTM D4812
-30°C	1200	--	J/m	ASTM D4812
23°C	No Break	--		ASTM D4812 ISO 180/1U
--	--	24 to 150	kJ/m²	ISO 180
-30°C [8]	No Break	--		ISO 180/1U
Instrumented Dart Impact				
--	--	2.00 to 61.4	J	ASTM D3763
--	--	3.20 to 120	J	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force	--	2240 to 5190	N	ISO 6603-2
Gardner Impact	--	36.0 to 43.0	J	ASTM D3029

Hardness	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Rockwell Hardness				
--	--	117 to 122		ASTM D785
--	--	71 to 125		ISO 2039-2
R-Scale	118	--		ISO 2039-2
Shore Hardness	--	75 to 81		ISO 868
Ball Indentation Hardness				ISO 2039-1
--	--	118 to 163	MPa	
H 358/30	135	--	MPa	

Thermal	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	--	139 to 226	°C	ASTM D648
0.45 MPa, Unannealed	--	111 to 221	°C	ISO 75-2/B
0.45 MPa, Unannealed, 4.00 mm, 64.0 mm Span [8]	115	--	°C	ISO 75-2/Bf
0.45 MPa, Annealed	--	155 to 181	°C	ISO 75-2/B
1.8 MPa, Unannealed	--	46.0 to 214	°C	ASTM D648
1.8 MPa, Unannealed	--	49.3 to 207	°C	ISO 75-2/A
1.8 MPa, Unannealed, 4.00 mm, 64.0 mm Span [8]	50.0	--	°C	ISO 75-2/Af
1.8 MPa, Annealed	--	57.0 to 78.0	°C	ISO 75-2/A
8.0 MPa, Unannealed	--	45.0 to 45.1	°C	ISO 75-2/C

Form No. TDS-31787-118479-en
Document Created: Friday, June 14, 2024

Thermal	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Continuous Use Temperature	--	120 to 122	°C	ASTM D794
Glass Transition Temperature	--	54.7 to 61.5	°C	ISO 11357-2
Vicat Softening Temperature				
--	--	166 to 220	°C	ASTM D1525
--	220	--	°C	ASTM D1525 [9] ISO 306/A50 [9]
--	175	--	°C	ASTM D1525 [10]
--	--	168 to 223	°C	ISO 306
Ball Pressure Test (123 to 127°C)	Pass	--		IEC 60695-10-2
Melting Temperature				
--	--	222 to 226	°C	
--	--	222 to 225	°C	DSC ASTM D3418
--	--	225 to 226	°C	ISO 11357-3
--	--	210 to 226	°C	ISO 3146
CLTE				
Flow	--	2.9E-5 to 9.3E-5	cm/cm/°C	ASTM D696
Flow	--	1.9E-5 to 1.4E-4	cm/cm/°C	ASTM E831
Flow	--	1.4E-5 to 4.4E-4	cm/cm/°C	ISO 11359-2
Flow : 23 to 80°C	1.3E-4	--	cm/cm/°C	ISO 11359-2
Transverse	--	7.5E-5 to 1.2E-4	cm/cm/°C	ASTM E831
Transverse	--	1.4E-5 to 4.3E-4	cm/cm/°C	ISO 11359-2
Transverse : 23 to 80°C	1.3E-4	--	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.16	0.25 to 0.28	W/m/K	ISO 8302
RTI Elec	120	72.5 to 140	°C	UL 746B
RTI Imp	120	74.8 to 140	°C	UL 746B
RTI Str	140	138 to 140	°C	UL 746B

Electrical	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Surface Resistivity				
--	--	1.0E+3 to 2.5E+15	ohms	ASTM D257
--	> 1.0E+15	1.0E+2 to 2.5E+15	ohms	IEC 60093
--	--	9.8E+14 to 1.0E+15	ohms	IEC 62631-3-2
Volume Resistivity				
--	> 1.0E+15	2.5 to 2.5E+17	ohms·cm	ASTM D257
--	> 1.0E+15	13 to 2.5E+17	ohms·cm	IEC 60093
--	--	1.0E+11 to 2.5E+13	ohms·m	IEC 62631-3-1
Dielectric Strength				
--	--	2.0 to 26	kV/mm	ASTM D149
0.800 mm, in Oil	31	--	kV/mm	ASTM D149 IEC 60243-1
1.60 mm, in Oil	25	--	kV/mm	ASTM D149 IEC 60243-1
3.20 mm, in Oil	16	--	kV/mm	ASTM D149 IEC 60243-1
--	--	15 to 31	kV/mm	IEC 60243-1
1.00 mm [11]	16	--	kV/mm	IEC 60243-1

Electrical	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Dielectric Constant				
--	--	2.91 to 3.44		ASTM D150
1 MHz	3.10	--		ASTM D150 IEC 60250
--	--	3.18 to 4.02		IEC 60250
--	--	3.16		IEC 60250
50 Hz	2.90	--		IEC 60250
60 Hz	2.90	--		IEC 60250
--	--	3.35		IEC 62631-2-1
Dissipation Factor				
--	--	1.0E-3 to 0.078		ASTM D150
1 MHz	0.020	--		ASTM D150 IEC 60250
--	--	7.8E-4 to 0.020		IEC 60250
50 Hz	3.0E-4	--		IEC 60250
60 Hz	3.0E-4	--		IEC 60250
--	--	4.0E-4 to 0.024		IEC 62631-2-1
Arc Resistance	--	69.5 to 180	sec	ASTM D495
Comparative Tracking Index				IEC 60112
--	600	587 to 600	V	
Solution B	350	--	V	

Flammability	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Burning Rate	--	0.0 to 100	mm/min	ISO 3795
Flame Rating				UL 94
1.5 mm	HB	--		
3.0 mm	HB	--		
Glow Wire Flammability Index				IEC 60695-2-12
--	--	743 to 960	°C	
1.0 mm	850	--	°C	
3.2 mm	750	--	°C	
Glow Wire Ignition Temperature	--	650 to 852	°C	IEC 60695-2-13
Oxygen Index				
--	--	19 to 32	%	ASTM D2863
--	21	22 to 30	%	ISO 4589-2

Fill Analysis	VALOX™ Resin 325 - Europe	Generic PBT	Unit	Test Method
Melt Density	--	1.04 to 1.11	g/cm³	
Melt Viscosity				
--	--	90.9 to 219	Pa·s	ASTM D3835
260°C, 1500 sec^-1	215	--	Pa·s	ISO 11443
Melt Specific Heat	--	2260	J/kg/°C	ASTM C351
Melt Thermal Conductivity	--	0.11	W/m/K	ASTM C177
Ejection Temperature	--	171	°C	

Form No. TDS-31787-118479-en
Document Created: Friday, June 14, 2024

Injection	VALOX™ Resin 325 - Europe	Generic PBT	Unit
Drying Temperature	110 to 120	109 to 121	°C
Drying Time	2.0 to 4.0	2.8 to 6.2	hr
Drying Time, Maximum	--	10	hr
Suggested Max Moisture	0.020	0.020 to 0.043	%
Suggested Shot Size	--	60	%
Hopper Temperature	40 to 60	35 to 51	°C
Rear Temperature	230 to 245	235 to 250	°C
Middle Temperature	240 to 255	234 to 261	°C
Front Temperature	245 to 265	238 to 266	°C
Nozzle Temperature	240 to 260	239 to 261	°C
Processing (Melt) Temp	250 to 270	244 to 266	°C
Mold Temperature	40 to 100	60 to 92	°C
Injection Pressure	--	77.0 to 87.5	MPa
Holding Pressure	--	58.6 to 80.0	MPa
Back Pressure	--	0.147 to 1.64	MPa
Screw Speed	--	45 to 300	rpm
Vent Depth	--	0.019 to 0.032	mm

Injection Notes	
Generic PBT	This data represents typical values that have been calculated from all products classified as: Generic PBT This information is provided for comparative purposes only.

Extrusion	VALOX™ Resin 325 - Europe	Generic PBT	Unit
Drying Temperature	--	110 to 120	°C
Drying Time	--	3.0 to 4.0	hr
Suggested Max Moisture	--	0.040	%
Melt Temperature	--	249 to 263	°C

Extrusion Notes	
Generic PBT	This data represents typical values that have been calculated from all products classified as: Generic PBT This information is provided for comparative purposes only.

Notes

[1] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

[2] Typical properties: these are not to be construed as specifications.

[3] Tensile Bar

[4] 50 mm/min

[5] Type I, 50 mm/min

[6] 2.0 mm/min

[7] at Yield

[8] 80*10*4 mm

[9] Rate A (50°C/h), Loading 1 (10 N)

[10] Rate A (50°C/h), Loading 2 (50 N)

[11] Shorttime