Product Comparison

PROSPECTOR®
www.ulprospector.com

Technical Data

Product Description	
VALOX™ Resin VX4920 - Europe	VALOX VX4920 is a 20% glass reinforced nucleated PBT/ASA blend with excellent mechanical properties, high dimensional stability and low density. Applications: connectors and automotive industry.
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 VX4920 - Europe	Generic PBT
Manufacturer / Supplier	• SABIC	• Generic
Generic Symbol	• PBT	• PBT
Material Status	• Commercial: Active	• Commercial: Active
UL Yellow Card [1]	• E45329-524769	--
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 Lighting • Electrical/Electronic Applications • Water Management	--
Also Available In	--	• Asia Pacific • Europe • Latin America • North America

Physical	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Density / Specific Gravity				
--	1.38	1.26 to 1.55		ASTM D792
--	1.38	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
Melt Mass-Flow Rate (MFR)				
200°C/3.8 kg	17	--	g/10 min	ASTM D1238
250°C/2.16 kg	--	8.0 to 56	g/10 min	ASTM D1238
265°C/5.0 kg	35	--	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	--	3.7 to 52	cm³/10min	
250°C/5.0 kg	17	--	cm³/10min	
265°C/5.0 kg	30	--	cm³/10min	

Form No. TDS-44831-118479-en
Document Created: Saturday, December 2, 2023

Physical	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Molding Shrinkage				
Flow	--	5.4E-3 to 0.021	in/in	ASTM D955
Across Flow	--	9.9E-3 to 0.020	in/in	ASTM D955
--	--	0.19 to 2.3	%	ISO 294-4
Across Flow [3]	0.40 to 0.80	--	%	Internal Method
Flow [3]	0.20 to 0.40	--	%	Internal Method
Flow : 0.126 in	0.30 to 0.60	--	%	Internal Method
Water Absorption				
24 hr	--	0.050 to 0.11	%	ASTM D570
24 hr, 73°F	--	0.040 to 0.20	%	ISO 62
Saturation	--	0.20 to 0.50	%	ASTM D570
Saturation, 73°F	0.76	0.077 to 0.52	%	ISO 62
Equilibrium	--	0.070 to 0.090	%	ASTM D570
Equilibrium, 73°F, 50% RH	0.27	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 VX4920 - Europe	Generic PBT	Unit	Test Method
Tensile Modulus				
--	--	307000 to 415000	psi	ASTM D638
-- [4]	1.04E+6	--	psi	ASTM D638
--	--	304000 to 417000	psi	ISO 527-1
--	1.04E+6	--	psi	ISO 527-1/1
Tensile Strength				
Yield [5]	15200	--	psi	ASTM D638
Yield	--	6600 to 17400	psi	ASTM D638
Yield	--	5570 to 8950	psi	ISO 527-2
Yield	15200	--	psi	ISO 527-2/5
Break	--	3190 to 20600	psi	ASTM D638
Break [5]	15200	--	psi	ASTM D638
Break	--	4880 to 8790	psi	ISO 527-2
Break	15200	--	psi	ISO 527-2/5
--	--	6440 to 8760	psi	ASTM D638
--	--	4570 to 8740	psi	ISO 527-2
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 527-2/5
Break	--	0.50 to 110	%	ASTM D638
Break [5]	3.0	--	%	ASTM D638
Break	--	1.6 to 23	%	ISO 527-2
Break	3.0	--	%	ISO 527-2/5
Nominal Tensile Strain at Break	--	2.5 to 52	%	ISO 527-2

Mechanical	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Tensile Creep Modulus				ISO 899-1
1 hr	--	348000	psi	
1000 hr	--	228000	psi	
Flexural Modulus				
1.97 in Span [6]	798000	--	psi	ASTM D790
--	--	247000 to 431000	psi	ASTM D790
--	--	303000 to 424000	psi	ISO 178
-- [7]	827000	--	psi	ISO 178
Flexural Strength				
--	--	8460 to 14400	psi	ASTM D790
--	--	1160 to 16400	psi	ISO 178
-- [7, 8]	22500	--	psi	ISO 178
Yield	--	10800 to 12400	psi	ASTM D790
Yield, 1.97 in Span [6]	23200	--	psi	ASTM D790
Break	--	290 to 29700	psi	ASTM D790
Break, 1.97 in Span [6]	23200	--	psi	ASTM D790
Flexural Strain - at Break [9]	4.0	--	%	ISO 178
Compressive Strength	--	2800 to 18000	psi	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	80.0	--	mg	Internal Method

Impact	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Charpy Notched Impact Strength				
--	--	0.70 to 4.9	ft·lb/in²	ISO 179
-22°F [10]	2.4	--	ft·lb/in²	ISO 179/1eA
-22°F	3.8	--	ft·lb/in²	ISO 179/2C
73°F [10]	2.9	--	ft·lb/in²	ISO 179/1eA
73°F	4.8	--	ft·lb/in²	ISO 179/2C
Charpy Unnotched Impact Strength				
--	--	5.5 to 96	ft·lb/in²	ISO 179
-22°F [10]	19	--	ft·lb/in²	ISO 179/1eU ISO 179/2U
73°F [10]	21	--	ft·lb/in²	ISO 179/1eU
73°F	26	--	ft·lb/in²	ISO 179/2U

Impact	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Notched Izod Impact				
--	--	0.54 to 1.9	ft·lb/in	ASTM D256
-22°F	1.3	--	ft·lb/in	ASTM D256
32°F	1.4	--	ft·lb/in	ASTM D256
73°F	1.5	--	ft·lb/in	ASTM D256
--	--	0.95 to 5.1	ft·lb/in²	ISO 180
-22°F [11]	3.3	--	ft·lb/in²	ISO 180/1A
32°F [11]	3.3	--	ft·lb/in²	ISO 180/1A
73°F [11]	3.3	--	ft·lb/in²	ISO 180/1A
Notched Izod Impact (Area)	--	1.57 to 19.0	ft·lb/in²	ASTM D256
Unnotched Izod Impact				
--	--	0.42 to 60	ft·lb/in	ASTM D4812
-22°F	11	--	ft·lb/in	ASTM D4812
73°F	13	--	ft·lb/in	ASTM D4812
--	--	11 to 72	ft·lb/in²	ISO 180
-22°F [11]	19	--	ft·lb/in²	ISO 180/1U
73°F [11]	21	--	ft·lb/in²	ISO 180/1U
Instrumented Dart Impact				
--	--	17.7 to 543	in·lb	ASTM D3763
73°F, Total Energy	443	--	in·lb	ASTM D3763
--	--	2.36 to 88.5	ft·lb	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force	--	504 to 1170	lbf	ISO 6603-2
Gardner Impact	--	319 to 381	in·lb	ASTM D3029

Hardness	VALOX™ Resin VX4920 - 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
--	--	17100 to 23600	psi	
H 358/30	18900	--	psi	

Thermal	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Deflection Temperature Under Load				
66 psi, Unannealed	--	282 to 439	°F	ASTM D648
66 psi, Unannealed, 0.126 in	410	--	°F	ASTM D648
66 psi, Unannealed	--	232 to 429	°F	ISO 75-2/B
66 psi, Unannealed, 0.157 in, 3.94 in Span [12]	408	--	°F	ISO 75-2/Be
66 psi, Unannealed, 0.157 in, 2.52 in Span [11]	410	--	°F	ISO 75-2/Bf
66 psi, Annealed	--	310 to 358	°F	ISO 75-2/B
264 psi, Unannealed	--	115 to 417	°F	ASTM D648
264 psi, Unannealed, 0.126 in	338	--	°F	ASTM D648
264 psi, Unannealed	--	121 to 404	°F	ISO 75-2/A
264 psi, Unannealed, 0.157 in, 3.94 in Span [12]	354	--	°F	ISO 75-2/Ae
264 psi, Unannealed, 0.157 in, 2.52 in Span [11]	338	--	°F	ISO 75-2/Af
264 psi, Annealed	--	135 to 172	°F	ISO 75-2/A
1160 psi, Unannealed	--	113	°F	ISO 75-2/C
Continuous Use Temperature	--	247 to 251	°F	ASTM D794
Glass Transition Temperature	--	130 to 143	°F	ISO 11357-2
Vicat Softening Temperature				
--	--	331 to 428	°F	ASTM D1525
--	428	--	°F	ASTM D1525 [13] ISO 306/A50 [13]
--	338	--	°F	ASTM D1525 [14] ISO 306/B50 [14]
--	329	--	°F	ISO 306/B120
--	--	334 to 433	°F	ISO 306
Ball Pressure Test (253 to 261°F)	Pass	--		IEC 60695-10-2
Melting Temperature				
--	--	431 to 438	°F	
--	--	432 to 437	°F	DSC ASTM D3418
--	--	436 to 438	°F	ISO 11357-3
--	--	410 to 438	°F	ISO 3146
CLTE				
Flow	--	1.6E-5 to 5.2E-5	in/in/°F	ASTM D696
Flow	--	1.1E-5 to 7.8E-5	in/in/°F	ASTM E831
Flow : -40 to 104°F	1.7E-5	--	in/in/°F	ASTM E831
Flow	--	7.8E-6 to 2.5E-4	in/in/°F	ISO 11359-2
Flow : -40 to 104°F	1.6E-5	--	in/in/°F	ISO 11359-2
Flow : 73 to 140°F	1.7E-5	--	in/in/°F	ISO 11359-2
Flow : 73 to 302°F	1.3E-5	--	in/in/°F	ISO 11359-2
Transverse	--	4.2E-5 to 6.5E-5	in/in/°F	ASTM E831
Transverse : -40 to 104°F	5.8E-5	--	in/in/°F	ASTM E831
Transverse	--	7.9E-6 to 2.4E-4	in/in/°F	ISO 11359-2
Transverse : -40 to 104°F	4.3E-5	--	in/in/°F	ISO 11359-2
Transverse : 73 to 140°F	5.8E-5	--	in/in/°F	ISO 11359-2
Transverse : 73 to 302°F	8.7E-5	--	in/in/°F	ISO 11359-2

Thermal	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Thermal Conductivity	1.7	1.7 to 1.9	Btu·in/hr/ft²/°F	ISO 8302
RTI Elec	--	163 to 284	°F	UL 746B
RTI Imp	--	167 to 284	°F	UL 746B
RTI Str	--	280 to 284	°F	UL 746B
Electrical	**VALOX™ Resin VX4920 - 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				
--	--	51 to 650	V/mil	ASTM D149
0.0630 in, in Oil	710	--	V/mil	ASTM D149 IEC 60243-1
0.126 in, in Oil	610	--	V/mil	ASTM D149 IEC 60243-1
--	--	380 to 780	V/mil	IEC 60243-1
Dielectric Constant				
--	--	2.91 to 3.44		ASTM D150
1 MHz	3.40	--		ASTM D150 IEC 60250
--	--	3.18 to 4.02		IEC 60250
--	--	3.16		IEC 60250
50 Hz	3.40	--		IEC 60250
60 Hz	3.40	--		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	2.4E-3	--		IEC 60250
60 Hz	2.4E-3	--		IEC 60250
--	--	4.0E-4 to 0.024		IEC 62631-2-1
Arc Resistance	--	69.5 to 180	sec	ASTM D495
Comparative Tracking Index (CTI)	PLC 1	--		UL 746A
Comparative Tracking Index	--	587 to 600	V	IEC 60112

Flammability	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Burning Rate	--	0.0 to 3.9	in/min	ISO 3795
Flame Rating (0.06 in, Testing by SABIC)	HB	--		UL 94
Glow Wire Flammability Index				IEC 60695-2-12
--	--	1370 to 1760	°F	
0.04 in	1380	--	°F	
Glow Wire Ignition Temperature	--	1200 to 1560	°F	IEC 60695-2-13
Oxygen Index				
--	--	19 to 32	%	ASTM D2863
--	--	22 to 30	%	ISO 4589-2

Fill Analysis	VALOX™ Resin VX4920 - 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
500°F, 1500 sec^-1	175	--	Pa·s	ISO 11443
Melt Specific Heat	--	0.539	Btu/lb/°F	ASTM C351
Melt Thermal Conductivity	--	0.76	Btu·in/hr/ft²/°F	ASTM C177
Ejection Temperature	--	339	°F	

Additional Information	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit	Test Method
Filler Content	20	--	%	ASTM D229

Injection	VALOX™ Resin VX4920 - Europe	Generic PBT	Unit
Drying Temperature	230 to 248	229 to 249	°F
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	104 to 140	95 to 123	°F
Rear Temperature	446 to 473	454 to 482	°F
Middle Temperature	464 to 491	454 to 502	°F
Front Temperature	473 to 509	461 to 511	°F
Nozzle Temperature	464 to 500	462 to 502	°F
Processing (Melt) Temp	482 to 518	471 to 511	°F
Mold Temperature	104 to 212	139 to 198	°F
Injection Pressure	--	11200 to 12700	psi
Holding Pressure	--	8490 to 11600	psi
Back Pressure	--	21.3 to 238	psi
Screw Speed	--	45 to 300	rpm
Vent Depth	--	7.5E-4 to 1.2E-3	in

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 VX4920 - Europe	Generic PBT	Unit
Drying Temperature	--	230 to 248	°F
Drying Time	--	3.0 to 4.0	hr
Suggested Max Moisture	--	0.040	%
Melt Temperature	--	481 to 505	°F

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] 0.20 in/min

[5] Type I, 0.20 in/min

[6] 0.051 in/min

[7] 0.079 in/min

[8] at Break

[9] 2 mm/min

[10] 80*10*4 sp=62mm

[11] 80*10*4 mm

[12] 120*10*4 mm

[13] Rate A (50°C/h), Loading 1 (10 N)

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