

Technical Data

Product Description				
VALOX™ FR Resin 553U - Americas	VALOX 553U is a 30% glass filled, UV stabilized flame retardant Polybutylene Terephthalate/ Polycarbonate (PBT/PC) injection moldable grade. It has excellent chemical resistance and a UL94V0@0.86mm and 5VA@2.31mm flame rating. This is a good candidate for applications needing reduced shrinkage/warpage including appliance handles, spotlights, electric motors, and pump housings			
Generic PC+PBT	This data represents typical values that have been calculated from all products classified as: Generic PC +PBT			
	This information is provided for comparative purposes only.			
General	VALOX™ FR Resin 553U - Americas	Generic PC+PBT		
Manufacturer / Supplier	• SABIC	• Generic		
Generic Symbol	• PC+PBT	• PC+PBT		
Material Status	• Commercial: Active	• Commercial: Active		
UL Yellow Card ¹	• E121562-220803	--		
Search for UL Yellow Card	• SABIC	--		
Availability	<ul style="list-style-type: none">• Latin America• North America	<ul style="list-style-type: none">• Africa & Middle East• Asia Pacific• Europe• Latin America• North America		
Uses	<ul style="list-style-type: none">• Appliances• Automotive Under the Hood• Construction Applications• Electrical Parts• Electrical/Electronic Applications• Electronic Displays• Lighting Applications• Recreational Vehicle Applications• Textile Applications• Water Management	--		
Also Available In	--	<ul style="list-style-type: none">• Asia Pacific• Europe• Latin America• North America		
Physical	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Density / Specific Gravity				
--	1.58	1.16 to 1.31		ASTM D792
--	--	1.20 to 1.22	g/cm³	ISO 1183
Specific Volume	17.4	--	in³/lb	ASTM D792
Apparent (Bulk) Density	--	0.65 to 0.80	g/cm³	ISO 60
Melt Mass-Flow Rate (MFR)				
250°C/5.0 kg	--	9.0 to 26	g/10 min	ASTM D1238
250°C/5.0 kg	--	7.8 to 16	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (250°C/5.0 kg)	--	7.9 to 21	cm³/10min	ISO 1133

Physical	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Molding Shrinkage				
Flow	--	6.4E-3 to 0.011	in/in	ASTM D955
--	--	0.11 to 1.2	%	ISO 294-4
Across Flow : 0.0591 to 0.126 in	0.40 to 0.60	--	%	Internal Method
Flow : 0.0591 to 0.126 in	0.30 to 0.50	--	%	Internal Method
Across Flow : 0.126 to 0.181 in	0.60 to 0.90	--	%	Internal Method
Flow : 0.126 to 0.181 in	0.50 to 0.80	--	%	Internal Method
Water Absorption				
24 hr	--	0.068 to 0.15	%	ASTM D570
24 hr, 73°F	0.070	--	%	ASTM D570
24 hr, 73°F	--	0.060 to 0.50	%	ISO 62
Saturation, 73°F	--	0.29 to 0.51	%	ISO 62
Equilibrium, 73°F, 50% RH	--	0.077 to 0.20	%	ISO 62
Outdoor Suitability	f1	--		UL 746C
Mechanical	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Tensile Modulus				
--	--	234000 to 369000	psi	ASTM D638
--	--	286000 to 358000	psi	ISO 527-1
Tensile Strength				
Yield	--	5870 to 9200	psi	ASTM D638
Yield	--	6240 to 9160	psi	ISO 527-2
Break	--	5420 to 16000	psi	ASTM D638
Break ³	16000	--	psi	ASTM D638
Break	--	5550 to 8210	psi	ISO 527-2
--	--	5950 to 9040	psi	ASTM D638
--	--	5080 to 12500	psi	ISO 527-2
Tensile Elongation				
Yield	--	2.0 to 94	%	ASTM D638
Yield	--	2.8 to 5.0	%	ISO 527-2
Break	--	3.0 to 150	%	ASTM D638
Break	--	2.0 to 130	%	ISO 527-2
Nominal Tensile Strain at Break	--	15 to 51	%	ISO 527-2
Flexural Modulus				
1.97 in Span ⁴	999000	--	psi	ASTM D790
--	--	229000 to 375000	psi	ASTM D790
--	--	269000 to 367000	psi	ISO 178
Flexural Strength				
--	--	8750 to 14100	psi	ASTM D790
--	--	8920 to 13100	psi	ISO 178
Yield	--	8900 to 14800	psi	ASTM D790
Break	--	10000 to 27600	psi	ASTM D790
Break, 1.97 in Span ⁴	26000	--	psi	ASTM D790
Taber Abrasion Resistance	--	30.0 to 30.1	mg	ASTM D1044



Impact	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Charpy Notched Impact Strength	--	4.2 to 29	ft·lb/in ²	ISO 179
Charpy Unnotched Impact Strength	--	10 to 81	ft·lb/in ²	ISO 179
Notched Izod Impact				
--	--	1.5 to 16	ft·lb/in	ASTM D256
73°F	1.6	--	ft·lb/in	ASTM D256
--	--	1.4 to 29	ft·lb/in ²	ISO 180
Unnotched Izod Impact				
--	--	8.6 to 60	ft·lb/in	ASTM D4812
73°F	12	--	ft·lb/in	ASTM D4812
--	--	14 to 71	ft·lb/in ²	ISO 180
Instrumented Dart Impact				
--	--	26.6 to 628	in·lb	ASTM D3763
--	--	34.6 to 81.3	ft·lb	ISO 6603-2
Gardner Impact	--	320 to 383	in·lb	ASTM D3029
Hardness	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Rockwell Hardness				
--	--	107 to 120		ASTM D785
R-Scale	118	--		ASTM D785
--	--	51 to 116		ISO 2039-2
Ball Indentation Hardness	--	11900 to 16400	psi	ISO 2039-1
Thermal	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Deflection Temperature Under Load				
66 psi, Unannealed	--	192 to 401	°F	ASTM D648
66 psi, Unannealed, 0.252 in	399	--	°F	ASTM D648
66 psi, Unannealed	--	198 to 252	°F	ISO 75-2/B
264 psi, Unannealed	--	139 to 226	°F	ASTM D648
264 psi, Unannealed, 0.252 in	320	--	°F	ASTM D648
264 psi, Unannealed	--	158 to 216	°F	ISO 75-2/A
Vicat Softening Temperature				
--	--	212 to 277	°F	ASTM D1525
--	--	241 to 278	°F	ISO 306
Melting Temperature				
--	--	437	°F	ISO 11357-3
--	--	433 to 437	°F	ASTM D3418
CLTE				
Flow	--	1.3E-5 to 4.7E-5	in/in/°F	ASTM D696
Flow	--	9.0E-6 to 6.9E-5	in/in/°F	ASTM E831
Flow : -40 to 104°F	1.2E-5	--	in/in/°F	ASTM E831
Flow : 140 to 280°F	1.2E-5	--	in/in/°F	ASTM E831
Flow	--	3.9E-5 to 5.6E-5	in/in/°F	ISO 11359-2
Transverse	--	4.0E-5 to 6.2E-5	in/in/°F	ASTM E831
Transverse	--	4.1E-5 to 6.2E-5	in/in/°F	ISO 11359-2
Thermal Conductivity	--	1.2 to 1.4	Btu·in/hr/ft ² /°F	ISO 8302
RTI Elec	257	167 to 258	°F	UL 746B



Thermal	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
RTI Imp	230	167 to 249	°F	UL 746B
RTI Str	257	167 to 284	°F	UL 746B
Electrical	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Surface Resistivity				
--	--	1.0E+5 to 1.5E+15	ohms	ASTM D257
--	--	1.0E+9 to 2.5E+15	ohms	IEC 60093
Volume Resistivity				
--	4.3E+16	1.0E+3 to 5.0E+16	ohms·cm	ASTM D257
--	--	1.0E+13 to 2.5E+17	ohms·cm	IEC 60093
Dielectric Strength				
--	--	470 to 710	V/mil	ASTM D149
0.0630 in, in Oil	650	--	V/mil	ASTM D149
0.126 in, in Air	480	--	V/mil	ASTM D149
--	--	380 to 770	V/mil	IEC 60243-1
Dielectric Constant				
--	--	2.84 to 4.00		ASTM D150
100 Hz	3.80	--		ASTM D150
1 MHz	3.70	--		ASTM D150
--	--	3.15		IEC 60250
Dissipation Factor				
--	--	1.4E-3 to 0.030		ASTM D150
100 Hz	2.0E-3	--		ASTM D150
1 MHz	0.020	--		ASTM D150
--	--	6.3E-4 to 0.020		IEC 60250
Arc Resistance ⁵	PLC 6	--		ASTM D495
Comparative Tracking Index (CTI)	PLC 3	--		UL 746A
Comparative Tracking Index	--	113 to 600	V	IEC 60112
High Amp Arc Ignition (HAI) ⁶	PLC 3	--		UL 746A
High Voltage Arc Resistance to Ignition (HVAR)	PLC 3	--		UL 746A
Hot-wire Ignition (HWI)	PLC 1	--		UL 746A
Flammability	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Flame Rating				UL 94
0.03 in	V-0	--		
0.09 in	5VA	--		
Glow Wire Flammability Index	--	1380 to 1760	°F	IEC 60695-2-12
Glow Wire Ignition Temperature	--	1320 to 1530	°F	IEC 60695-2-13
Oxygen Index	37	--	%	ASTM D2863
Fill Analysis	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	Test Method
Melt Viscosity	--	205 to 263	Pa·s	ASTM D3835
Injection	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit	
Drying Temperature	248	201 to 250	°F	



Injection	VALOX™ FR Resin 553U - Americas	Generic PC+PBT	Unit
Drying Time	3.0 to 4.0	2.8 to 6.2	hr
Drying Time, Maximum	--	8.0	hr
Suggested Max Moisture	0.020	0.015 to 0.020	%
Suggested Shot Size	40 to 80	50 to 65	%
Hopper Temperature	--	122 to 123	°F
Rear Temperature	464 to 491	459 to 510	°F
Middle Temperature	473 to 500	483 to 520	°F
Front Temperature	482 to 509	483 to 535	°F
Nozzle Temperature	473 to 500	485 to 550	°F
Processing (Melt) Temp	482 to 509	481 to 558	°F
Mold Temperature	149 to 194	154 to 177	°F
Injection Pressure	--	12300 to 12600	psi
Holding Pressure	--	62.5 to 11600	psi
Back Pressure	43.5 to 102	60.6 to 96.3	psi
Screw Speed	50 to 80	44 to 70	rpm
Vent Depth	9.8E-4 to 1.5E-3	6.5E-4 to 2.3E-3	in

Injection Notes

VALOX™ FR Resin 553U - Americas	• Drying Time (Cumulative): 12 hr
Generic PC+PBT	This data represents typical values that have been calculated from all products classified as: Generic PC +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 Type I, 0.20 in/min
- ⁴ 0.051 in/min
- ⁵ Tungsten Electrode
- ⁶ Surface