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VALOX™ FR RESINS 553

REGION EUROPE

DESCRIPTION

VALOX 553 is a 30% glass filled flame retardant Polybutylene Terephthalate/Polycarbonate (PBT/PC) injection moldable grade. It has excellent chemical resistance and a UL94V0@0.86mm and 5VA@2.3mm flame rating. This is a good candidate for applications needing reduced shrinkage/warpage including appliance handles, spotlights, electric motors, and pump housings

TYPICAL PROPERTY VALUES

Revision 20260509

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	140	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	110	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D638
Tensile Modulus, 5 mm/min	10700	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	179	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	179	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	9400	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	135	MPa	ISO 527
Tensile Stress, break, 5 mm/min	135	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2	%	ISO 527
Tensile Strain, break, 5 mm/min	2	%	ISO 527
Tensile Modulus, 1 mm/min	11000	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	205	MPa	ISO 178
Flexural Stress, break, 2 mm/min	200	MPa	ISO 178
Flexural Strain, break, 2 mm/min	3	%	ISO 178
Flexural Modulus, 2 mm/min	9500	MPa	ISO 178
Ball Indentation Hardness, H358/30	132	MPa	ISO 2039-1
Hardness, Rockwell R	118	-	ISO 2039-2
IMPACT			
Charpy Impact, unnotched, 23°C	60	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, -30°C	55	kJ/m²	ISO 179/2C
Izod Impact, unnotched, 23°C	640	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	770	J/m	ASTM D4812
Izod Impact, notched, 23°C	85	J/m	ASTM D256
Izod Impact, notched, 0°C	95	J/m	ASTM D256
Izod Impact, notched, -30°C	90	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	8	J	ASTM D3763
Izod Impact, unnotched 80*10*4 +23°C	53	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	52	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	10	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 0°C	10	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	9	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	8	kJ/m²	ISO 179/1eA

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy Impact, notched, 23°C	11	kJ/m²	ISO 179/2C
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	8	kJ/m²	ISO 179/1eA
Charpy Impact, notched, -30°C	11	kJ/m²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Izod Reverse Impact, notched 80*10*4,23°C	45	kJ/m²	ISO 180/1C
THERMAL			
Vicat Softening Temp, Rate A/50	210	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	165	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	203	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	138	°C	ASTM D648
CTE			
-40°C to 40°C, flow	2.3E-05	1/°C	ASTM E831
-40°C to 40°C, xflow	5.77E-05	1/°C	ASTM E831
-40°C to 40°C, flow	1.92E-05	1/°C	ISO 11359-2
-40°C to 40°C, xflow	7.4E-05	1/°C	ISO 11359-2
23°C to 80°C, flow	2.5E-05	1/°C	ISO 11359-2
23°C to 80°C, xflow	8.5E-05	1/°C	ISO 11359-2
23°C to 150°C, flow	1.54E-05	1/°C	ISO 11359-2
23°C to 150°C, xflow	1.24E-04	1/°C	ISO 11359-2
Ball Pressure Test			
125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	210	°C	ISO 306
Vicat Softening Temp, Rate B/50	165	°C	ISO 306
Vicat Softening Temp, Rate B/120	161	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	205	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	135	°C	ISO 75/Ae
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	202	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	140	°C	ISO 75/Af
Relative Temp Index, Elec	125	°C	UL 746B
Relative Temp Index, Mech w/impact	110	°C	UL 746B
Relative Temp Index, Mech w/o impact	125	°C	UL 746B
PHYSICAL			
Specific Gravity	1.59	-	ASTM D792
Filler Content	30	%	ASTM D229
Mold Shrinkage on Tensile Bar, flow	0.4 – 0.6	%	SABIC method
Moisture Absorption, (23°C/50% RH/24 hrs)	0.07	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm	0.5	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow	0.5 – 0.9	%	SABIC method
Melt Flow Rate, 266°C/5.0 kgf	40	g/10 min	ASTM D1238
Density	1.58	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.26	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	7	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 250°C/5.0 kg	20	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 265°C/5.0 kg	30	cm³/10 min	ISO 1133

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Melt Viscosity, 260°C, 1500 sec-1	200	Pa-s	ISO 11443
ELECTRICAL			
Volume Resistivity	>1.E+15	Ω.cm	ASTM D257
Dielectric Strength, in oil, 0.8 mm	28	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	25	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	15	kV/mm	ASTM D149
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
Hot Wire Ignition {PLC}	1	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	3	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Volume Resistivity	>1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Dielectric Strength, in oil, 0.8 mm	28	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	24	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	15	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	3.3	-	IEC 60250
Dissipation Factor			
50/60 Hz	0.001	-	IEC 60250
1 MHz	0.007	-	IEC 60250
2450 MHz	0.02	-	IEC 60250
Comparative Tracking Index	225	V	IEC 60112
Comparative Tracking Index, M	125	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.4	-	IEC 60250
FLAME CHARACTERISTICS			
UL Yellow Card Link	E45329-236627	-	-
UL Recognized, 94V-0 Flame Class Rating	0.86	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	2.3	mm	UL 94
Needle Flame Test, 10 s , passes at	1.5	mm	IEC 60695-2-2
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	750	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	750	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	775	°C	IEC 60695-2-13
Oxygen Index (LOI)	34	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	110 – 120	°C	
Drying Time	2 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	250 – 270	°C	
Nozzle Temperature	240 – 260	°C	
Front - Zone 3 Temperature	245 – 265	°C	
Middle - Zone 2 Temperature	240 – 255	°C	
Rear - Zone 1 Temperature	230 – 245	°C	
Hopper Temperature	40 – 60	°C	
Mold Temperature	40 – 100	°C	

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