

VALOX™ FR RESINS 771

REGION EUROPE

DESCRIPTION

VALOX 771 is a 35% mineral/glass filled, flame retardant Polybutylene Terephthalate (PBT) injection moldable grade. It has excellent chemical resistance and a UL94V0@0.75 flame rating and 5VA@2.0mm. This grade also has a CTI of 0 and is a good candidate for applications that may see electrical arcing.

TYPICAL PROPERTY VALUES

Revision 20241105

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	85	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	85	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2	%	ASTM D638
Tensile Modulus, 5 mm/min	9500	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	110	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	110	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	7900	MPa	ASTM D790
Taber Abrasion, CS-17, 1 kg	55	mg/1000cy	SABIC method
Tensile Stress, yield, 5 mm/min	85	MPa	ISO 527
Tensile Stress, break, 5 mm/min	85	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	9700	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	120	MPa	ISO 178
Flexural Stress, break, 2 mm/min	120	MPa	ISO 178
Flexural Strain, break, 2 mm/min	2	%	ISO 178
Flexural Modulus, 2 mm/min	8400	MPa	ISO 178
Ball Indentation Hardness, H358/30	120	MPa	ISO 2039-1
Hardness, Rockwell R	111	-	ISO 2039-2
IMPACT			
Charpy Impact, unnotched, 23°C	29	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, -30°C	29	kJ/m²	ISO 179/2C
Izod Impact, unnotched, 23°C	390	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	390	J/m	ASTM D4812
Izod Impact, notched, 23°C	52	J/m	ASTM D256
Izod Impact, notched, 0°C	52	J/m	ASTM D256
Izod Impact, notched, -30°C	51	J/m	ASTM D256
Izod Impact, unnotched 80*10*4 +23°C	25	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	25	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	5	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 0°C	5	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy Impact, notched, 23°C	6	kJ/m²	ISO 179/2C
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA
Charpy Impact, notched, -30°C	6	kJ/m²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	45	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	20	kJ/m²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate A/50	220	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	190	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	203	°C	ASTM D648
CTE, -40°C to 40°C, flow	2.25E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	5.9E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	3.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	9.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, flow	3.01E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	1.35E-04	1/°C	ISO 11359-2
Ball Pressure Test			
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Ball Pressure Test, 175°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	220	°C	ISO 306
Vicat Softening Temp, Rate B/50	190	°C	ISO 306
Vicat Softening Temp, Rate B/120	190	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	215	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Ae
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	220	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	190	°C	ISO 75/Af
Relative Temp Index, Elec	120	°C	UL 746B
Relative Temp Index, Mech w/impact	125	°C	UL 746B
Relative Temp Index, Mech w/o impact	140	°C	UL 746B
PHYSICAL			
Specific Gravity	1.7	-	ASTM D792
Filler Content	35	%	ASTM D229
Mold Shrinkage on Tensile Bar, flow	0.3 – 0.6	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow	0.4 – 1	%	SABIC method
Melt Flow Rate, 266°C/5.0 kgf	20	g/10 min	ASTM D1238
Density	1.7	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.94	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.09	%	ISO 62
Melt Volume Rate, MVR at 250°C/5.0 kg	8	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 265°C/5.0 kg	16	cm³/10 min	ISO 1133
Melt Viscosity, 260°C, 1500 sec-1	140	Pa-s	ISO 11443
ELECTRICAL			
Volume Resistivity	>1.E+15	Ω.cm	ASTM D257
Arc Resistance, Tungsten {PLC}	4	PLC Code	ASTM D495
Hot Wire Ignition {PLC}	0	PLC Code	UL 746A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
High Voltage Arc Track Rate {PLC}	0	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	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, 1.6 mm	23	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	20	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	3.1	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.0095	-	IEC 60250
Dissipation Factor, 1 MHz	0.0128	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Comparative Tracking Index, M	175	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.3	-	IEC 60250
Comparative Tracking Index (UL) {PLC}	0	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Yellow Card Link	<u>E45329-236615</u>	-	-
UL Recognized, 94V-2 Flame Class Rating	0.62	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	0.75	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	2	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	675	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	675	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	675	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	775	°C	IEC 60695-2-13
Oxygen Index (LOI)	31	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	110 – 120	°C	
Drying Time	3 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	255 – 275	°C	
Nozzle Temperature	255 – 275	°C	
Front - Zone 3 Temperature	255 – 265	°C	
Middle - Zone 2 Temperature	250 – 260	°C	
Rear - Zone 1 Temperature	245 – 255	°C	
Hopper Temperature	40 – 60	°C	
Mold Temperature	40 – 100	°C	

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