

VALOX™ RESIN SHF4320

REGION EUROPE

DESCRIPTION

VALOX SHF4320 is a 10% glass fibre reinforced PBT injection moulding resin with excellent electrical properties combined with good flow, mechanical and heat characteristics.

Applications: Thin wall (high voltage) automotive connectors.

TYPICAL PROPERTY VALUES

Revision 20230321

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yield, 5 mm/min	80	MPa	ISO 527
Tensile Stress, break, 5 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3.4	%	ISO 527
Tensile Strain, break, 5 mm/min	3.4	%	ISO 527
Tensile Modulus, 1 mm/min	4350	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	120	MPa	ISO 178
Flexural Stress, break, 2 mm/min	115	MPa	ISO 178
Flexural Strain, break, 2 mm/min	5	%	ISO 178
Flexural Modulus, 2 mm/min	3750	MPa	ISO 178
Tensile Stress, brk, Type I, 5 mm/min	80	MPa	ASTM D638
Tensile Stress, yld, Type I, 5 mm/min	80	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3.4	%	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	3.4	%	ASTM D638
Tensile Modulus, 5 mm/min	4400	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	120	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	112	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3700	MPa	ASTM D790
Ball Indentation Hardness, H358/30	110	MPa	ISO 2039-1
Hardness, Rockwell R	120	-	ISO 2039-2
IMPACT			
Izod Impact, unnotched 80*10*4 +23°C	35	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	30	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	7	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m ²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m ²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	35	kJ/m ²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	30	kJ/m ²	ISO 179/1eU
Izod Impact, notched, 23°C	45	J/m	ASTM D256
Izod Impact, unnotched, 23°C	505	J/m	ASTM D4812
THERMAL			
Vicat Softening Temp, Rate A/50	220	°C	ISO 306
Vicat Softening Temp, Rate B/50	200	°C	ISO 306
Vicat Softening Temp, Rate B/120	195	°C	ISO 306

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	185	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	215	°C	ISO 75/Bf
CTE, 23°C to 150°C, flow	4.50E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	2.05E-04	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	220	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	200	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	215	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	185	°C	ASTM D648
CTE, 23°C to 150°C, flow	4.50E-05	1/°C	ASTM E831
CTE, 23°C to 150°C, xflow	2.05E-04	1/°C	ASTM E831
PHYSICAL			
Density	1.35	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Water Absorption, (23°C/saturated)	0.2	%	ISO 62-1
Mold Shrinkage, flow	0.7 – 1.1	%	SABIC method
Mold Shrinkage, xflow	1.1 – 1.5	%	SABIC method
Melt Volume Rate, MVR at 250°C/2.16 kg	23	cm³/10 min	ISO 1133
Melt Viscosity, 260°C, 1500 sec-1	100	Pa-s	ISO 11443
Specific Gravity	1.35	-	ASTM D792
Filler Content	10	%	ASTM D229
Moisture Absorption, (23°C/50% RH/24 hrs)	0.06	%	ASTM D570
Water Absorption, (23°C/24hrs)	0.18	%	ASTM D570
Melt Flow Rate, 250°C/2.16 kgf	25	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 250°C/2.16 kg	22	cm³/10 min	ASTM D1238
ELECTRICAL			
Volume Resistivity	>1.E+15	Ω.cm	ASTM D257
Dielectric Strength, in oil, 0.8 mm	30	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	23	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	18	kV/mm	ASTM D149
Relative Permittivity, 1 MHz	3.4	-	ASTM D150
Dissipation Factor, 1 MHz	0.015	-	ASTM D150
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	30	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	23	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	18	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	3.4	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.015	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.1	-	IEC 60250
Comparative Tracking Index (UL) {PLC}	0	PLC Code	UL 746A
Hot Wire Ignition {PLC}	1	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
FLAME CHARACTERISTICS			
UL Yellow Card Link	E45329-104622916	-	-
UL Recognized, 94HB Flame Class Rating	1.5	mm	UL 94
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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