

Valox* Resin 4521

Europe-Africa-Middle East: COMMERCIAL

VALOX 4521 is a high flow, 19.5% glass reinforced flame retardant PBT injection moulding resin. Applications: electrical applications.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
MECHANICAL			
Tensile Stress, break, 5 mm/min	110	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	7500	MPa	ISO 527
Flexural Stress, break, 2 mm/min	160	MPa	ISO 178
Flexural Modulus, 2 mm/min	7000	MPa	ISO 178
IMPACT			
Izod Impact, unnotched 80*10*4 +23°C	40	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	25	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	5	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	5	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	30	kJ/m ²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	28	kJ/m ²	ISO 179/1eU
THERMAL			
Thermal Conductivity	0.27	W/m-°C	ISO 8302
CTE, 23°C to 80°C, flow	2.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.2E-04	1/°C	ISO 11359-2
CTE, 23°C to 150°C, flow	2.E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	1.3E-04	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	205	°C	ISO 306
Vicat Softening Temp, Rate B/120	190	°C	ISO 306

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume rate are measured on injection moulded samples. All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. Not to be used for part or tool design.
3) This rating is not intended to reflect hazards presented this or any other material under actual fire conditions.
4) Own measurement according to UL.
5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

Source, GMD, Last Update:

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
THERMAL			
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	220	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	205	°C	ISO 75/Ae
Relative Temp Index, Elec	130	°C	UL 746B
Relative Temp Index, Mech w/impact	130	°C	UL 746B
Relative Temp Index, Mech w/o impact	130	°C	UL 746B
PHYSICAL			
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.3 - 0.7	%	SABIC Method
Mold Shrinkage on Tensile Bar, xflow (2) (5)	0.6 - 0.9	%	SABIC Method
Density	1.53	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.28	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.09	%	ISO 62
Melt Flow Rate, 250°C/2.16 kg	26	g/10 min	ISO 1133
Melt Volume Rate, MVR at 250°C/2.16 kg	19	cm ³ /10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	>1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 0.8 mm	25	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	17	kV/mm	IEC 60243-1
Relative Permittivity, 50/60 Hz	3.3	-	IEC 60250
Relative Permittivity, 1 MHz	3.2	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.02	-	IEC 60250
Comparative Tracking Index	275	V	IEC 60112
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	0.75	mm	UL 94

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
FLAME CHARACTERISTICS			
Glow Wire Flammability Index 960°C, passes at	3.2	mm	IEC 60695-2-12
Oxygen Index (LOI)	29	%	ISO 4589

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
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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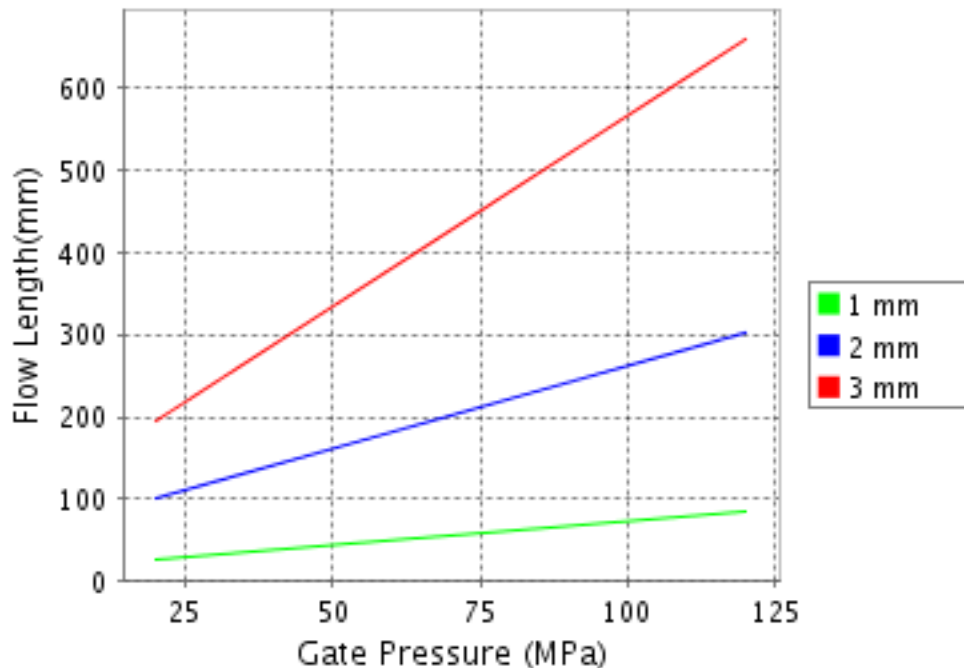
CALCULATED FLOW LENGTH INDICATION

Moldflow® Radial Flow Analysis

Valox® 4521

Melt Temperature : 255°C

Mold Temperature : 60°C



Note: Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.

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