VALOX™ Resin DR48 - CS1049

Europe-Africa-Middle East: COMMERCIAL

VALOX DR48 is a 15 % glass reinforced, flame retardant injection moulding PBT resin. Applications: lamp sockets, connectors, switches, electrical housings and bases, bobbins, trimmers and electromotor housings.

TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Taber Abrasion, CS-17, 1 kg	16	mg/1000cy	SABIC Method
Tensile Stress, yield, 5 mm/min	102	MPa	ISO 527
Tensile Stress, break, 5 mm/min	102	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3	%	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	6300	MPa	ISO 527
Flexural Stress, break, 2 mm/min	150	MPa	ISO 178
Flexural Modulus, 2 mm/min	5200	MPa	ISO 178
Hardness, Rockwell R	120	-	ISO 2039-2
IMPACT			
Izod Impact, unnotched 80*10*4 +23°C	30	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	27	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	5	kJ/m²	ISO 179/1eA
Charpy Impact, notched, 23°C	5	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	5	kJ/m²	ISO 179/2C
THERMAL			
Thermal Conductivity	0.19	W/m-°C	ISO 8302
CTE, -40°C to 40°C, flow	2.83E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.95E-05	1/°C	ISO 11359-2

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.
(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
(4) Internal measurements according to UL standards.
(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.

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TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
THERMAL			
CTE, 23°C to 80°C, flow	3.5E-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	2.57E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	1.49E-04	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/120	200	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	170	°C	ISO 75/Af
Relative Temp Index, Elec	120	°C	UL 746B
Relative Temp Index, Mech w/impact	120	°C	UL 746B
Relative Temp Index, Mech w/o impact	140	°C	UL 746B
PHYSICAL			
Filler Content	15	%	ASTM D 229
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.5 - 0.8	%	SABIC Method
Mold Shrinkage on Tensile Bar, xflow (2) (5)	0.6 - 0.9	%	SABIC Method
Density	1.5	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.17	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	8	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 250°C/5.0 kg	24	cm³/10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	1.E+15	Ohm-cm	ASTM D 257
Dielectric Strength, in oil, 0.8 mm	29	kV/mm	ASTM D 149
Dielectric Strength, in oil, 1.6 mm	23	kV/mm	ASTM D 149
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	ASTM D 149
Relative Permittivity, 1 MHz	3.1	-	ASTM D 150

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ELECTRICAL			
Dissipation Factor, 1 MHz	0.012	-	ASTM D 150
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	3	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Volume Resistivity	1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, shorttime, 1.0mm	19	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 0.8 mm	29	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	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	3.1	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.012	-	IEC 60250
Comparative Tracking Index	175	V	IEC 60112
Comparative Tracking Index, M	150	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.2	-	IEC 60250
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	0.89	mm	UL 94
UL Recognized, 94-5VA Rating (3)	3	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Oxygen Index (LOI)	31	%	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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