

VALOX™ DR48 resin

Polybutylene Terephthalate

SABIC Innovative Plastics

Message:

VALOX DR48 is a 17% glass reinforced, flame retardant injection moulding PBT resin. Applications: lamp sockets, connectors, switches, electrical housings and bases, bobbins, trimmers and electromotor housings.

General Information			
UL YellowCard	E45329-236616		
Filler / Reinforcement	Glass fiber reinforced material, 17% filler by weight		
Additive	Flame retardancy		
Features	Flame retardancy		
Uses	Electrical housing		
	Switch		
	Connector		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.51	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (266°C/5.0 kg)	90	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	14.0	cm ³ /10min	ISO 1133
250°C/5.0 kg	40.0	cm ³ /10min	ISO 1133
265°C/5.0 kg	70.0	cm ³ /10min	ISO 1133
Molding Shrinkage ¹			Internal method
Flow	0.50 - 0.80	%	Internal method
Transverse flow	0.60 - 0.90	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.17	%	ISO 62
Equilibrium, 23°C, 50% RH	0.070	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	120		ISO 2039-2
Ball Indentation Hardness (H 358/30)	218	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ²	7100	MPa	ASTM D638
--	7000	MPa	ISO 527-2/1
Tensile Strength			
Yield ³	100	MPa	ASTM D638

Yield	104	MPa	ISO 527-2/5
Fracture ⁴	100	MPa	ASTM D638
Fracture	104	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁵	2.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5
Fracture ⁶	2.0	%	ASTM D638
Fracture	2.0	%	ISO 527-2/5
Flexural Modulus			
50.0mm span ⁷	5400	MPa	ASTM D790
-- ⁸	6100	MPa	ISO 178
Flexural Stress			
--	155	MPa	ISO 178
Yield, 50.0mm span ⁹	130	MPa	ASTM D790
Fracture, 50.0mm span ¹⁰	130	MPa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	16.0	mg	Internal method
Flexural Strain at Break ¹¹	3.0	%	ISO 178
Filler Content	17	%	ASTM D229
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ¹²	4.0	kJ/m ²	ISO 179/1eA
-30°C	5.0	kJ/m ²	ISO 179/2C
23°C ¹³	5.0	kJ/m ²	ISO 179/1eA, ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C ¹⁴	20	kJ/m ²	ISO 179/1eU
-30°C	24	kJ/m ²	ISO 179/2U
23°C ¹⁵	25	kJ/m ²	ISO 179/1eU
23°C	24	kJ/m ²	ISO 179/2U
Notched Izod Impact			
-30°C	45	J/m	ASTM D256
0°C	45	J/m	ASTM D256
23°C	45	J/m	ASTM D256
-30°C ¹⁶	5.0	kJ/m ²	ISO 180/1A
0°C ¹⁷	5.0	kJ/m ²	ISO 180/1A
23°C ¹⁸	5.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	280	J/m	ASTM D4812
23°C	280	J/m	ASTM D4812
-30°C ¹⁹	20	kJ/m ²	ISO 180/1U
23°C ²⁰	20	kJ/m ²	ISO 180/1U
Thermal	Nominal Value	Unit	Test Method

Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	215	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ²¹	215	°C	ISO 75-2/Be
0.45 MPa, unannealed, 64.0mm span ²²	210	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	190	°C	ASTM D648
1.8 MPa, unannealed, 100 mm span ²³	185	°C	ISO 75-2/Ae
1.8 MPa, unannealed, 64.0mm span ²⁴	180	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	199	°C	ASTM D1525, ISO 306/B120 14 ²⁵
--	218	°C	ASTM D1525, ISO 306/A50 15 ²⁶
--	198	°C	ISO 306/B50
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			ISO 11359-2
Flow: -40 to 40°C	2.8E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 80°C	3.5E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 150°C	2.6E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	7.0E-5	cm/cm/°C	ISO 11359-2
Lateral: 23 to 80°C	9.5E-5	cm/cm/°C	ISO 11359-2
Horizontal: 23 to 150°C	1.5E-4	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.19	W/m/K	ISO 8302
RTI Elec	120	°C	UL 746
RTI Imp	120	°C	UL 746
RTI	140	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	1.0E+15	ohms·cm	ASTM D257, IEC 60093
Dielectric Strength			
0.800 mm, in Oil	29	kV/mm	ASTM D149
1.60 mm, in Oil	23	kV/mm	ASTM D149
3.20 mm, in Oil	16	kV/mm	ASTM D149
0.800mm, in oil	29	kV/mm	IEC 60243-1
1.00 mm ²⁷	19	kV/mm	IEC 60243-1
1.60mm, in oil	23	kV/mm	IEC 60243-1
3.20mm, in oil	16	kV/mm	IEC 60243-1
Dielectric Constant			
1 MHz	3.10		ASTM D150, IEC 60250
50 Hz	3.20		IEC 60250
60 Hz	3.20		IEC 60250
Dissipation Factor			
1 MHz	0.012		ASTM D150, IEC 60250
50 Hz	1.0E-3		IEC 60250

60 Hz	1.0E-3		IEC 60250
Arc Resistance ²⁸	PLC 6		ASTM D495
Comparative Tracking Index (CTI)	PLC 3		UL 746
Comparative Tracking Index			IEC 60112
--	175	V	IEC 60112
Solution B	150	V	IEC 60112
High Amp Arc Ignition (HAI)	PLC 0		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 4		UL 746
Hot-wire Ignition (HWI)	PLC 3		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.890 mm	V-0		UL 94
3.00 mm	5VA		UL 94
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Oxygen Index	31	%	ISO 4589-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	105	Pa · s	ISO 11443
Injection	Nominal Value	Unit	
Drying Temperature	110 - 120	°C	
Drying Time	2.0 - 4.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	40.0 - 60.0	°C	
Rear Temperature	230 - 245	°C	
Middle Temperature	240 - 255	°C	
Front Temperature	245 - 265	°C	
Nozzle Temperature	240 - 260	°C	
Processing (Melt) Temp	250 - 270	°C	
Mold Temperature	40.0 - 100	°C	
NOTE			
1.	Tensile Bar		
2.	5.0 mm/min		
3.	Type 1, 5.0 mm/min		
4.	Type 1, 5.0 mm/min		
5.	Type 1, 5.0 mm/min		
6.	Type 1, 5.0 mm/min		
7.	1.3 mm/min		
8.	2.0 mm/min		
9.	1.3 mm/min		
10.	1.3 mm/min		
11.	2 mm/min		
12.	80*10*4 sp=62mm		
13.	80*10*4 sp=62mm		

14.	80*10*4 sp=62mm
15.	80*10*4 sp=62mm
16.	80*10*4
17.	80*10*4
18.	80*10*4
19.	80*10*4
20.	80*10*4
21.	120*10*4 mm
22.	80*10*4 mm
23.	120*10*4 mm
24.	80*10*4 mm
25.	标准 B (120°C/h), 载荷2 (50N)
26.	速率 A (50°C/h), 载荷2 (50N)
27.	Short-Time
28.	Tungsten electrode

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