

VALOX™ FR Resin DR48 - Europe

Polybutylene Terephthalate

SABIC

PROSPECTOR®

www.ulprospector.com

Technical Data

Product Description

VALOX DR48 is a 17% glass filled, flame retardant Polybutyleneterephthalate (PBT) injection moldable grade with excellent chemical resistance. It has a UL94V0@0.90mm and 5VA@3.0mm flame rating. This is a good candidate for a variety of applications in the electrical industry including connectors, bobbins, and switches.

General

Material Status	• Commercial: Active
UL Yellow Card ¹	• E45329-236616 • E45329-103127446
Search for UL Yellow Card	• SABIC
Availability	• Europe
Uses	<ul style="list-style-type: none">• Appliances• Automotive Exterior Parts• Automotive Interior Parts• Automotive Under the Hood• Construction Applications• Electrical Parts• Electrical/Electronic Applications• Electronic Displays• Industrial Applications• Lawn and Garden Equipment• Lighting Applications• Material Handling• Medical Devices• Medical/Healthcare Applications• Non-specific Food Applications• Outdoor Applications• Rail Applications• Recreational Vehicle Applications• Water Management
Also Available In	<ul style="list-style-type: none">• Asia Pacific• Latin America• North America

Physical

	Nominal Value Unit	Test Method
Density / Specific Gravity		
--	1.53 g/cm ³	ASTM D792
--	1.51 g/cm ³	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 cm ³ /10min	
250°C/5.0 kg	40 cm ³ /10min	
265°C/5.0 kg	70 cm ³ /10min	
Molding Shrinkage ³		Internal Method
Across Flow	0.60 to 0.90 %	
Flow	0.50 to 0.80 %	
Water Absorption		ISO 62
Saturation, 23°C	0.17 %	
Equilibrium, 23°C, 50% RH	0.070 %	

Mechanical

	Nominal Value Unit	Test Method
Tensile Modulus		
-- ⁴	7100 MPa	ASTM D638
--	7000 MPa	ISO 527-1/1
Tensile Strength		
Yield ⁵	93.0 MPa	ASTM D638
Yield	104 MPa	ISO 527-2/5
Break ⁵	93.0 MPa	ASTM D638
Break	104 MPa	ISO 527-2/5
Tensile Elongation		
Yield ⁵	2.0 %	ASTM D638
Yield	2.0 %	ISO 527-2/5
Break ⁵	2.0 %	ASTM D638
Break	2.0 %	ISO 527-2/5
Flexural Modulus		
50.0 mm Span ⁶	5200 MPa	ASTM D790
-- ⁷	6100 MPa	ISO 178



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Mechanical	Nominal Value Unit	Test Method
Flexural Stress		
-- 7, 8	155 MPa	ISO 178
Yield, 50.0 mm Span ⁶	140 MPa	ASTM D790
Break, 50.0 mm Span ⁶	140 MPa	ASTM D790
Flexural Strain - at Break ⁹	3.0 %	ISO 178
Taber Abrasion Resistance		Internal Method
1000 Cycles, 1000 g, CS-17 Wheel	16.0 mg	
Impact	Nominal Value Unit	Test Method
Charpy Notched Impact Strength		
-30°C ¹⁰	4.0 kJ/m ²	ISO 179/1eA
-30°C	5.0 kJ/m ²	ISO 179/2C
23°C ¹⁰	5.0 kJ/m ²	ISO 179/1eA ISO 179/2C
Charpy Unnotched Impact Strength		
-30°C ¹⁰	20 kJ/m ²	ISO 179/1eU
-30°C	24 kJ/m ²	ISO 179/2U
23°C ¹⁰	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	49 J/m	ASTM D256
-30°C ¹¹	5.0 kJ/m ²	ISO 180/1A
0°C ¹¹	5.0 kJ/m ²	ISO 180/1A
23°C ¹¹	5.0 kJ/m ²	ISO 180/1A
Unnotched Izod Impact		
-30°C	280 J/m	ASTM D4812
23°C	500 J/m	ASTM D4812
-30°C ¹¹	20 kJ/m ²	ISO 180/1U
23°C ¹¹	20 kJ/m ²	ISO 180/1U
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
Thermal	Nominal Value Unit	Test Method
Deflection Temperature Under Load		
0.45 MPa, Unannealed, 3.20 mm	215 °C	ASTM D648
0.45 MPa, Unannealed, 4.00 mm, 100 mm Span ¹²	215 °C	ISO 75-2/Be
0.45 MPa, Unannealed, 4.00 mm, 64.0 mm Span ¹¹	210 °C	ISO 75-2/Bf
1.8 MPa, Unannealed, 3.20 mm	190 °C	ASTM D648
1.8 MPa, Unannealed, 4.00 mm, 100 mm Span ¹²	185 °C	ISO 75-2/Ae
1.8 MPa, Unannealed, 4.00 mm, 64.0 mm Span ¹¹	180 °C	ISO 75-2/af
Vicat Softening Temperature		
--	218 °C	ASTM D1525 ¹³ ISO 306/A50 ¹³
--	199 °C	ASTM D1525 ¹⁴ ISO 306/B120 ¹⁴
--	198 °C	ISO 306/B50
Ball Pressure Test (123 to 127°C)	Pass	IEC 60695-10-2



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Thermal	Nominal Value Unit	Test Method
CLTE		ISO 11359-2
Flow : -40 to 40°C	2.8E-5 cm/cm/°C	
Flow : 23 to 80°C	3.5E-5 cm/cm/°C	
Flow : 23 to 150°C	2.6E-5 cm/cm/°C	
Transverse : -40 to 40°C	7.0E-5 cm/cm/°C	
Transverse : 23 to 80°C	9.5E-5 cm/cm/°C	
Transverse : 23 to 150°C	1.5E-4 cm/cm/°C	
Thermal Conductivity	0.19 W/m/K	ISO 8302
RTI Elec	120 °C	UL 746B
RTI Imp	120 °C	UL 746B
RTI Str	140 °C	UL 746B
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 IEC 60243-1
1.60 mm, in Oil	25 kV/mm	ASTM D149
3.20 mm, in Oil	16 kV/mm	ASTM D149 IEC 60243-1
1.00 mm ¹⁵	19 kV/mm	IEC 60243-1
1.60 mm, in Oil	23 kV/mm	IEC 60243-1
Dielectric Constant		
1 MHz	3.40	ASTM D150
50 Hz	3.20	IEC 60250
60 Hz	3.20	IEC 60250
1 MHz	3.10	IEC 60250
Dissipation Factor		
1 MHz	0.016	ASTM D150
50 Hz	1.0E-3	IEC 60250
60 Hz	1.0E-3	IEC 60250
1 MHz	0.012	IEC 60250
Arc Resistance ¹⁶	PLC 6	ASTM D495
Comparative Tracking Index (CTI)	PLC 3	UL 746A
Comparative Tracking Index		IEC 60112
--	175 V	
Solution B	150 V	
High Amp Arc Ignition (HAI) ¹⁷	PLC 0	UL 746A
High Voltage Arc Resistance to Ignition (HVAR)	PLC 4	UL 746A
Hot-wire Ignition (HWI)	PLC 3	UL 746A
Flammability	Nominal Value Unit	Test Method
Flame Rating		UL 94
0.9 mm	V-0	
3.0 mm	5VA	
Glow Wire Flammability Index (1.0 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
Additional Information	Nominal Value Unit	Test Method
Filler Content	17 %	ASTM D229



Injection	Nominal Value Unit
Drying Temperature	110 to 120 °C
Drying Time	2.0 to 4.0 hr
Suggested Max Moisture	0.020 %
Hopper Temperature	40 to 60 °C
Rear Temperature	230 to 245 °C
Middle Temperature	240 to 255 °C
Front Temperature	245 to 265 °C
Nozzle Temperature	240 to 260 °C
Processing (Melt) Temp	250 to 270 °C
Mold Temperature	40 to 100 °C

Notes

¹ A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

² Typical properties: these are not to be construed as specifications.

³ Tensile Bar

⁴ 5.0 mm/min

⁵ Type I, 5.0 mm/min

⁶ 1.3 mm/min

⁷ 2.0 mm/min

⁸ at Break

⁹ 2 mm/min

¹⁰ 80*10*4 sp=62mm

¹¹ 80*10*4 mm

¹² 120*10*4 mm

¹³ Rate A (50°C/h), Loading 1 (10 N)

¹⁴ Rate A (50°C/h), Loading 2 (50 N)

¹⁵ Shorttime

¹⁶ Tungsten Electrode

¹⁷ Surface



Where to Buy**Supplier****SABIC**Web: <http://www.sabic.com/>**Distributor****AECTRA**

Telephone: +33-4-72-54-36-42

Web: <https://www.aectra.fr/>

Availability: Bulgaria, Romania

AGI-Augusto Guimarães & Irmão

Telephone: +351-22753-7400

Web: <https://www.agi.pt/en/>

Availability: Portugal

GRÄSSLIN

Telephone: +49-7721-4040-261

Web: <https://www.graesslin-kunststoffe.de>

Availability: Germany

Guzmán Polymers

Telephone: +34-963-992-400

Web: <https://www.guzmanglobal.com/en/productos/plastics/>

Availability: Italy, Spain, Turkey

Lenorplastics

Telephone: +41-61-706-11-11

Web: <https://www.lenorplastics.ch>

Availability: Switzerland

Plastoplan

Telephone: +43-1-25040-0

Web: <https://www.plastoplan.com/>

Availability: Austria, Czech Republic, Hungary, Slovakia

POLYMIX*POLYMIX is a Pan European distribution company. Contact POLYMIX for availability of individual products by country.*

Telephone: +33-3-8920-1380

Web: <http://www.polymix.eu/>

Availability: France

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Telephone: +32-14-672511

Web: <http://www.resinex.com/>

Availability: Europe

Ultrapolymers*Ultrapolymers is a Pan European distribution company. Contact Ultrapolymers for availability of individual products by country.*

Telephone: +32-11-57-95-57

Web: <http://www.ultrapolymers.com/>

Availability: Belgium, Netherlands, South Africa

