

SABIC Innovative Plastics Valox® DR51 PBT

Category : Polymer , Thermoplastic , Polyester, TP , Polybutylene Terephthalate (PBT)

Material Notes:

15% GR polyester, excellent mechanical, thermal and electrical performance. Non-flame retardant. Spotlights, appliance housings, handles, connectors

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Valox-DR51-PBT.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Water Absorption	0.070 % @Time 86400 sec	0.070 % @Time 24.0 hour	ASTM D570
Linear Mold Shrinkage, Flow	0.0040 - 0.0060 cm/cm @Thickness 1.50 - 3.20 mm	0.0040 - 0.0060 in/in @Thickness 0.0591 - 0.126 in	SABIC Method
	0.0060 - 0.0090 cm/cm @Thickness 3.20 - 4.60 mm	0.0060 - 0.0090 in/in @Thickness 0.126 - 0.181 in	SABIC Method
Linear Mold Shrinkage, Transverse	0.0050 - 0.0080 cm/cm @Thickness 1.50 - 3.20 mm	0.0050 - 0.0080 in/in @Thickness 0.0591 - 0.126 in	SABIC Method
	0.0080 - 0.011 cm/cm @Thickness 3.20 - 4.60 mm	0.0080 - 0.011 in/in @Thickness 0.126 - 0.181 in	SABIC Method

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	118	118	ASTM D785
Tensile Strength at Break	93.0 MPa	13500 psi	Type I, 5 mm/min; ASTM D638
Elongation at Break	5.0 %	5.0 %	Type I, 5 mm/min; ASTM D638
Flexural Strength	144 MPa	20900 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Modulus	4.82 GPa	699 ksi	1.3 mm/min, 50 mm span; ASTM D790
Izod Impact, Notched	0.530 J/cm	0.993 ft-lb/in	ASTM D256
Izod Impact, Unnotched	5.34 J/cm	10.0 ft-lb/in	ASTM D4812

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	21.6 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	12.0 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	ASTM E 831
	@Temperature -40.0 - 40.0 $\text{Å}^\circ\text{C}$	@Temperature -40.0 - 104 $\text{Å}^\circ\text{F}$	
	21.6 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	12.0 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	ASTM E 831
	@Temperature 60.0 - 138 $\text{Å}^\circ\text{C}$	@Temperature 140 - 280 $\text{Å}^\circ\text{F}$	
Deflection Temperature at 0.46 MPa (66 psi)	210 $\text{Å}^\circ\text{C}$	410 $\text{Å}^\circ\text{F}$	unannealed; ASTM D648
	@Thickness 6.40 mm	@Thickness 0.252 in	
Deflection Temperature at 1.8 MPa (264 psi)	190 $\text{Å}^\circ\text{C}$	374 $\text{Å}^\circ\text{F}$	unannealed; ASTM D648
	@Thickness 6.40 mm	@Thickness 0.252 in	
UL RTI, Electrical	130 $\text{Å}^\circ\text{C}$	266 $\text{Å}^\circ\text{F}$	UL 746B
UL RTI, Mechanical with Impact	130 $\text{Å}^\circ\text{C}$	266 $\text{Å}^\circ\text{F}$	UL 746B
UL RTI, Mechanical without Impact	140 $\text{Å}^\circ\text{C}$	284 $\text{Å}^\circ\text{F}$	UL 746B
Flammability, UL94	HB	HB	UL 94
	@Thickness 0.710 mm	@Thickness 0.0280 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	3.30e+16 ohm-cm	3.30e+16 ohm-cm	ASTM D257
Dielectric Constant	3.4	3.4	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.6	3.6	ASTM D150
	@Frequency 100 Hz	@Frequency 100 Hz	
Dielectric Strength	19.6 kV/mm	498 kV/in	in air; ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
	23.2 kV/mm	589 kV/in	in oil; ASTM D149
	@Thickness 1.60 mm	@Thickness 0.0630 in	
Dissipation Factor	0.0020	0.0020	ASTM D150
	@Frequency 100 Hz	@Frequency 100 Hz	
	0.020	0.020	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Electrical Properties	Metric ^{120, 180 sec}	English ^{120, 180 sec}	Comments ^{ASTM D495}
Comparative Tracking Index	250 - 400 V	250 - 400 V	UL 746A
High Voltage Arc-Tracking Rate, HVTR	10.0 - 25.4 mm/min	0.394 - 1.00 in/min	UL 746A

Descriptive Properties	Value	Comments
Specific Volume	0.71cm ³ /g	ASTM D792

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