

VALOX™ FR RESINS 357U

REGION AMERICAS

DESCRIPTION

VALOX 357U is an unreinforced, UV stabilized, impact modified flame retardant Polybutylene Terephthalate/Polycarbonate (PBT) injection moldable grade. It has excellent chemical resistance and a UL94V0@0.64mm and 5VA@3.0mm flame rating. This is a good candidate for applications in the electrical industry including bobbins, switches, and enclosures.

TYPICAL PROPERTY VALUES

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Modulus, 50 mm/min	2050	MPa	ASTM D638
Tensile Stress, yld, Type I, 50 mm/min	48	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	48	MPa	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	110	%	ASTM D638
Tensile Strain, yield, 50 mm/min	5.28	%	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	82	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	82	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2060	MPa	ASTM D790
Hardness, Rockwell R	117	-	ASTM D785
IMPACT			
Izod Impact, unnotched, 23°C	3204	J/m	ASTM D4812
Izod Impact, notched, 23°C	534	J/m	ASTM D256
Gardner, 23°C	43	J	ASTM D3029
Modified Gardner, 23°C	43	J	ASTM D3029
THERMAL			
HDT, 0.45 MPa, 6.4 mm, unannealed	137	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	98	°C	ASTM D648
CTE, -40°C to 40°C, flow	9.18E-05	1/°C	ASTM E831
CTE, 60°C to 138°C, flow	1.24E-04	1/°C	ASTM E831
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			
Specific Gravity	1.34	-	ASTM D792
Specific Volume	0.75	cm³/g	ASTM D792
Water Absorption, (23°C/24hrs)	0.08	%	ASTM D570
Mold Shrinkage, flow, 0.75-2.3 mm	0.8 – 1.1	%	SABIC method
Mold Shrinkage, flow, 2.3-4.6 mm	1 – 1.4	%	SABIC method
Mold Shrinkage, xflow, 0.75-2.3 mm	0.9 – 1.3	%	SABIC method
Mold Shrinkage, xflow, 2.3-4.6 mm	1.2 – 1.6	%	SABIC method
Melt Volume Rate, MVR at 250°C/5.0 kg	8	cm³/10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	>1.2E+16	Ω.cm	ASTM D257

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Dielectric Strength, in air, 3.2 mm	18.5	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	25.2	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	18.5	kV/mm	ASTM D149
Relative Permittivity, 100 Hz	3.2	-	ASTM D150
Relative Permittivity, 1 MHz	3.2	-	ASTM D150
Dissipation Factor, 100 Hz	0.003	-	ASTM D150
Dissipation Factor, 1 MHz	0.03	-	ASTM D150
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
Hot Wire Ignition {PLC}	2	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	3	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Yellow Card Link	<u>E121562-100036617</u>	-	-
UL Yellow Card Link 2	<u>E121562-220786</u>	-	-
UL Recognized, 94HB Flame Class Rating	0.46	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	0.64	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	3	mm	UL 94
Oxygen Index (LOI)	30	%	ASTM D2863
UV-light, water exposure/immersion	F1	-	UL 746C
INJECTION MOLDING			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	12	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	250 – 265	°C	
Nozzle Temperature	245 – 260	°C	
Front - Zone 3 Temperature	250 – 265	°C	
Middle - Zone 2 Temperature	245 – 260	°C	
Rear - Zone 1 Temperature	240 – 255	°C	
Mold Temperature	50 – 75	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	50 – 100	rpm	
Shot to Cylinder Size	40 – 80	%	
Vent Depth	0.025 – 0.038	mm	