NORYL™ RESIN V0150B

REGION ASIA

DESCRIPTION

NORYL™ V0150B resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This injection moldable contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 1.5mm along with a UL746C Outdoor Suitability rating of F1. exhibits good low temperature impact resistance, damp heat performance, low moisture absorption and good dimensional stability. NORYL V0150B resin is an excellent candidate for parts that are exposed to tough outdoor environments, such as Solar / Photovoltaic (PV) junction boxes and outdoor housings and enclosures.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	70	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	60	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	7	%	ASTM D 638
Tensile Modulus, 5 mm/min	2500	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	105	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2550	MPa	ASTM D 790
Taber Abrasion, CS-17, 1 kg	35	mg/1000cy	SABIC method
Tensile Stress, yield, 50 mm/min	70	MPa	ISO 527
Tensile Stress, break, 50 mm/min	55	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Tensile Strain, break, 50 mm/min	10	%	ISO 527
Tensile Modulus, 1 mm/min	2500	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	110	MPa	ISO 178
Flexural Modulus, 2 mm/min	2400	MPa	ISO 178
Ball Indentation Hardness, H358/30	113	MPa	ISO 2039-1
IMPACT			
Izod Impact, notched, 23°C	330	J/m	ASTM D 256
Izod Impact, notched, -30°C	180	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	50	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	13	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	14	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	155	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	135	°C	ASTM D 648
CTE, -40°C to 40°C, flow	7.5E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.5E-05	1/°C	ASTM E 831
Thermal Conductivity	0.27	W/m-°C	ISO 8302
CTE, 23°C to 80°C, flow	7.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	9.E-05	1/°C	ISO 11359-2

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Ball Pressure Test, approximate maximum	140	°C	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	160	°C	ISO 306
Vicat Softening Temp, Rate B/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/120	155	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	140	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	130	°C	ISO 75/Ae
Relative Temp Index, Elec [1]	110	°C	UL 746B
Relative Temp Index, Mech w/impact [1]	105	°C	UL 746B
Relative Temp Index, Mech w/o impact [1]	115	°C	UL 746B
PHYSICAL			
Specific Gravity	1.11	-	ASTM D 792
Mold Shrinkage on Tensile Bar, flow	0.5 – 0.7	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	3.5	g/10 min	ASTM D 1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.18	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	10	cm³/10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 0.8 mm	33	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	26	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.7	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.0009	-	IEC 60250
Dissipation Factor, 1 MHz	0.003	-	IEC 60250
Comparative Tracking Index [2]	250	V	IEC 60112
Relative Permittivity, 50/60 Hz	2.8	-	IEC 60250
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥0.8	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥0.8	mm	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D 495
FLAME CHARACTERISTICS [1]			
UL Yellow Card Link	E207780-100727518	-	-
UL Yellow Card Link 2	E207780-100727519	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥0.8	mm	UL 94
Glow Wire Flammability Index, 1.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Glow Wire Ignitability Temperature, 1.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	775	°C	IEC 60695-2-13
UV-light, water exposure/immersion	F1	-	UL 746C
Oxygen Index (LOI)	32	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	110 – 120	°C	
Drying Time	2 – 3	hrs	
Melt Temperature	300 – 320	°C	
Nozzle Temperature	280 – 300	°C	
Front - Zone 3 Temperature	300 – 320	°C	
Middle - Zone 2 Temperature	280 – 300	°C	
Rear - Zone 1 Temperature	260 – 280	°C	
Hopper Temperature	80 – 100	°C	
Mold Temperature	100 – 130	°C	

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(2) Value shown here is based on internal measurement.

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