

NORYL™ RESIN V0150B

DESCRIPTION

NORYL V0150B resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). 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.

GENERAL INFORMATION	
Features	Flame Retardant, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, High temperature resistance, Low temperature impact, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding
Regional Availability	Europe, Asia, Americas

TYPICAL PROPERTY VALUES

Revision 20241022

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL ⁽¹⁾			
Tensile Stress, yld, Type I, 50 mm/min	70	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	60	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	7	%	ASTM D638
Tensile Modulus, 5 mm/min	2500	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	105	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2550	MPa	ASTM D790
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 ⁽¹⁾			
Izod Impact, notched, 23°C	330	J/m	ASTM D256
Izod Impact, notched, -30°C	180	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	50	J	ASTM D3763
Izod Impact, notched 80*10*4 +23°C	13	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	14	kJ/m ²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m ²	ISO 179/1eA

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
THERMAL ⁽¹⁾			
Vicat Softening Temp, Rate B/50	155	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	135	°C	ASTM D648
CTE, -40°C to 40°C, flow	7.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.5E-05	1/°C	ASTM E831
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
Ball Pressure Test, 125°C +/- 2°C	PASS	-	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 ⁽²⁾	110	°C	UL 746B
Relative Temp Index, Mech w/impact ⁽²⁾	105	°C	UL 746B
Relative Temp Index, Mech w/o impact ⁽²⁾	115	°C	UL 746B
PHYSICAL ⁽¹⁾			
Specific Gravity	1.11	-	ASTM D792
Mold Shrinkage on Tensile Bar, flow ⁽³⁾	0.5 – 0.7	%	SABIC method
Mold Shrinkage, flow, 3.2 mm ⁽³⁾	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	3.5	g/10 min	ASTM D1238
Density	1.11	g/cm ³	ISO 1183
Water Absorption, (23°C/saturated)	0.18	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	10	cm ³ /10 min	ISO 1133
ELECTRICAL ⁽¹⁾			
Volume Resistivity	1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	1.E+15	Ω	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 ⁽⁴⁾	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 D495
FLAME CHARACTERISTICS ⁽²⁾			
UL Yellow Card Link	E121562-100883043	-	-

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UL Yellow Card Link 2	E121562-100883044	-	-
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
Glow Wire Ignitability Temperature, 1.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 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 ⁽⁵⁾			
Maximum Moisture Content	0.02	%	
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	
PROFILE EXTRUSION ⁽⁶⁾			
Drying Temperature	110	°C	
Drying Time	4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	250 – 280	°C	
Barrel - Zone 1 Temperature	250 – 280	°C	
Barrel - Zone 2 Temperature	250 – 280	°C	
Barrel - Zone 3 Temperature	250 – 280	°C	
Barrel - Zone 4 Temperature	250 – 280	°C	
Adapter Temperature	250 – 280	°C	
Die Temperature	260 – 270	°C	
Calibrator Temperature	60 – 80	°C	
Water Bath Temperature	60 – 80	°C	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

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

(3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

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

(5) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

(6) Extrusion parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations.



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