NORYL™ RESIN V0150IR2

DESCRIPTION

NORYL V0150IR2 resin is an unreinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 1.0mm, 5VA at 2.0mm along with a UL746C Outdoor Suitability rating of F1. NORYL V0150IR2 resin exhibits high impact strength, good dimensional stability, high heat resistance, strong electrical performance, very low specific gravity and capable for laser welding process. The target applications are Solar / Photovoltaic (PV) junction boxes and other electrical enclosure with laser welding process.

GENERAL INFORMATION	
Features	Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Non Cl/Br flame retardant, Dimensional stability, High temperature resistance
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Electrical and Electronics	Energy Management
Hydrocarbon and Energy	Energy Storage

TYPICAL PROPERTY VALUES

Revision 20250313

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 5 mm/min	72	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	53	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	4.7	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	16.1	%	ASTM D638
Tensile Modulus, 5 mm/min	2540	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	116	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2630	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	72	MPa	ISO 527
Tensile Stress, break, 5 mm/min	52	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	4.8	%	ISO 527
Tensile Strain, break, 5 mm/min	13.9	%	ISO 527
Tensile Modulus, 1 mm/min	2558	MPa	ISO 527
Flexural Strength, 2 mm/min	112	MPa	ISO 178
Flexural Modulus, 2 mm/min	2535	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	117	J/m	ASTM D256
Izod Impact, notched, -30°C	61	J/m	ASTM D256
Izod Impact, unnotched, 23°C	2130	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	1920	J/m	ASTM D4812
Izod Impact, notched 80*10*4 +23°C	7.9	kJ/m²	ISO 180/1A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 -30°C	6.2	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	120	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	107	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	8.8	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5.3	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	94	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	94	kJ/m²	ISO 179/1eU
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	146	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	127	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	148	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	130	°C	ISO 75/Af
Vicat Softening Temp, Rate A/50	162	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	151	°C	ASTM D1525
Vicat Softening Temp, Rate A/50	163	°C	ISO 306
Vicat Softening Temp, Rate B/50	151	°C	ISO 306
CTE, -40°C to 40°C, flow	7.2E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.8E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	7.0E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.8E-05	1/°C	ISO 11359-2
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	1.1	-	ASTM D792
Density	1.1	g/cm³	ISO 1183
Melt Flow Rate, 300°C/5.0 kgf	13.8	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/5.0 kg	11.4	cm³/10 min	ISO 1133
Moisture Absorption (23°C / 50% RH)	0.007	%	ISO 62
Water Absorption, 23°C/24hrs	0.23	%	SABIC method
Mold Shrinkage, flow, 3.2 mm [3]	1.04	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [3]	1.09	%	SABIC method
ELECTRICAL [1]			
Volume Resistivity	2.1E+16	Ω.cm	ASTM D257
Surface Resistivity	1.1E+17	Ω	ASTM D257
Comparative Tracking Index (UL) {PLC} [2]	2	PLC Code	UL 746A
FLAME CHARACTERISTICS [1]			
UL Yellow Card Link [2]	E207780-104687451	-	-
UL Recognized, 94V-0 Flame Class Rating [2]	≥1.0	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating [2]	≥2.0	mm	UL 94
UV-light, water exposure/immersion [2]	f1	-	UL 746C
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 3.0 mm	825	°C	IEC 60695-2-13
INJECTION MOLDING [4]			
Drying Temperature	100 – 120	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Drying Time	3 – 5	Hrs	
Melt Temperature	280 – 330	°C	
Nozzle Temperature	250 – 330	°C	
Front - Zone 3 Temperature	280 – 330	°C	
Middle - Zone 2 Temperature	280 – 330	°C	
Rear - Zone 1 Temperature	280 – 330	°C	
Hopper Temperature	70 – 140	°C	
Mold Temperature	30 – 100	°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 and colors. 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) 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.

DISCLAIMER