NORYL™ RESIN N1150

REGION EUROPE

DESCRIPTION

NORYL N1150 resin is a non-reinforced 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 5VA at 2.5mm and V0 at 0.75mm. NORYL N1150 resin offers heat resistance, good impact resistance, low specific gravity, and dimensional stability. It is an excellent candidate for a variety of automotive instrument panel applications.

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
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries
Building and Construction	Building Component
Consumer	Home Appliances, Commercial Appliance
Electrical and Electronics	Energy Management, Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241016

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	75	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	55	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	4	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	8	%	ASTM D638
Tensile Modulus, 5 mm/min	2700	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	117	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3050	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	72	MPa	ISO 527
Tensile Stress, break, 50 mm/min	52	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	3.5	%	ISO 527
Tensile Strain, break, 50 mm/min	7	%	ISO 527
Tensile Modulus, 1 mm/min	2650	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	105	MPa	ISO 178
Flexural Modulus, 2 mm/min	2600	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	85	J/m	ASTM D256
Izod Impact, notched, -30°C	65	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	40	J	ASTM D3763

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 +23°C	6	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	4	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m²	ISO 179/1eA
THERMAL [1]			
Vicat Softening Temp, Rate B/50	130	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	108	°C	ASTM D648
CTE, -40°C to 40°C, flow	5.45E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	5.75E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	5.45E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	5.75E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	130	°C	ISO 306
Vicat Softening Temp, Rate B/120	132	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	109	°C	ISO 75/Af
Relative Temp Index, Elec [2]	95	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	95	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	95	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.11	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	15	g/10 min	ASTM D1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.07	%	ISO 62-1
Melt Volume Rate, MVR at 280°C/5.0 kg	15	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Volume Resistivity	5.E+16	Ω.cm	ASTM D257
Surface Resistivity	2.E+16	Ω	ASTM D257
Relative Permittivity, 1 MHz	2.6	-	ASTM D150
Dissipation Factor, 1 MHz	0.003	-	ASTM D150
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Volume Resistivity	5.E+16	Ω.cm	IEC 60093
Surface Resistivity, ROA	2.E+16	Ω	IEC 60093
Relative Permittivity, 1 MHz	2.6	-	IEC 60250
Dissipation Factor, 1 MHz	0.003	-	IEC 60250
Comparative Tracking Index	275	V	IEC 60112
High Amp Arc Ignition (HAI), PLC 0	≥0.75	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥2.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥2	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 3	≥0.75	mm	UL 746A
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E45329-101091262	-	-
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
Oxygen Index (LOI)	38	%	ISO 4589
INJECTION MOLDING [4]			
Drying Temperature	95 – 100	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	260 – 290	°C	
Nozzle Temperature	260 – 290	°C	
Front - Zone 3 Temperature	250 – 290	°C	
Middle - Zone 2 Temperature	240 – 280	°C	
Rear - Zone 1 Temperature	225 – 275	°C	
Mold Temperature	70 – 95	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 70	%	
Vent Depth	0.038 – 0.051	mm	

(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) 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