NORYL™ RESIN NH6010B

REGION AMERICAS

DESCRIPTION

NORYL NH6010B resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This high performance, injection moldable and extrusion grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 1.5mm. NORYL NH6010B resin features low smoke production upon burning, high heat resistance, very low specific gravity, and compliance to IEC. In addition, this material is heat stabilized and impact modified. It is an excellent candidate for conduit and trunking applications in transportation, building + construction, and electrical markets. *see NORYL LS6010 resin for FAR 25.853 requirements.

GENERAL INFORMATION	
Features	Flame Retardant, Heat Stabilized, Hydrolytic Stability, Low Warpage, Low Smoke and Toxicity, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, High temperature resistance, Impact resistant, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Sheet extrusion, Injection Molding, Profile Extrusion

INDUSTRY	SUB INDUSTRY
Building and Construction	Building Component
Electrical and Electronics	Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20260513

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	64	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	53	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	4.6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	20	%	ASTM D638
Tensile Modulus, 5 mm/min	2220	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	100	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2390	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	64	MPa	ISO 527
Tensile Stress, break, 50 mm/min	58	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.7	%	ISO 527
Tensile Strain, break, 50 mm/min	8.3	%	ISO 527
Tensile Modulus, 1 mm/min	2440	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	100	MPa	ISO 178
Flexural Modulus, 2 mm/min	2360	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	300	J/m	ASTM D256
Izod Impact, notched, -30°C	181	J/m	ASTM D256

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Instrumented Dart Impact Total Energy, 23°C	52	J	ASTM D3763
Izod Impact, notched 80*10*4 +23°C	18	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	14	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	20	kJ/m²	ISO 179/1eA
THERMAL [1]			
Vicat Softening Temp, Rate B/50	143	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	122	°C	ASTM D648
CTE, -40°C to 40°C, flow	6.7E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.7E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	6.7E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.7E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	143	°C	ISO 306
Vicat Softening Temp, Rate B/120	146	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	124	°C	ISO 75/Af
Relative Temp Index, Elec [2]	130	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	65	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	130	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.11	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.8	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	5.6	g/10 min	ASTM D1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.2	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	5	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Volume Resistivity	7.62E+17	Ω.cm	ASTM D257
Surface Resistivity, ROA	1.25E+18	Ω	IEC 60093
Dielectric Strength, in oil, 3.2 mm	34.1	kV/mm	ASTM D149
Relative Permittivity, 1 MHz	2.78	-	ASTM D150
Dissipation Factor, 1 MHz	0.0029	-	ASTM D150
Volume Resistivity	7.62E+17	Ω.cm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	34.1	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.7	-	IEC 60250
Dissipation Factor, 1 MHz	0.0029	-	IEC 60250
Comparative Tracking Index [4]	225	V	IEC 60112
High Amp Arc Ignition (HAI), PLC 2	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥1.5	mm	UL 746A
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E121562-100050086	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1.5	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	800	°C	IEC 60695-2-13
M1 Flame Class Rating	2	mm	NF P 92501
Flame Spread Index (1.52mm)	15	-	ASTM E162
NBS Smoke Density, Flaming, 4 min (1.52mm)	30	-	ASTM E662
NBS Smoke Density, Flaming, 4 min (3.2 mm)	30	-	ASTM E662
NBS Smoke Density, Flaming, 20 min (3.2 mm)	120	-	ASTM E662
NBS Smoke Density, Non-Flaming, 4 min (1.52mm)	7	-	ASTM E662
Oxygen Index (LOI)	33	%	ISO 4589
F1 Class Smoke and Toxicity Rating	3	mm	NF F16-101
INJECTION MOLDING [5]			
Drying Temperature	95 – 105	°C	
Drying Time	2 – 4	Hrs	
Drying Time (Cumulative)	12	Hrs	
Melt Temperature	280 – 305	°C	
Nozzle Temperature	295 – 305	°C	
Front - Zone 3 Temperature	295 – 305	°C	
Middle - Zone 2 Temperature	290 – 300	°C	
Rear - Zone 1 Temperature	280 – 295	°C	
Mold Temperature	65 – 100	°C	
Screw Speed	40 – 80	rpm	
Shot to Cylinder Size	30 – 70	%	
SHEET EXTRUSION			
Drying Temperature	95 – 105	°C	
Drying Time	2 – 4	Hrs	
Drying Time (Cumulative)	12	Hrs	
Maximum Moisture Content	0.07	%	
Melt Temperature	220 – 260	°C	
Barrel - Zone 1 Temperature	220 – 260	°C	
Barrel - Zone 2 Temperature	220 – 260	°C	
Barrel - Zone 3 Temperature	220 – 260	°C	
Barrel - Zone 4 Temperature	220 – 260	°C	
Adapter Temperature	220 – 260	°C	
Die Temperature	220 – 260	°C	
Roll Stack Temp - Top	90 – 150	°C	
Roll Stack Temp - Middle	90 – 150	°C	
Roll Stack Temp - Bottom	90 – 150	°C	
PROFILE EXTRUSION			
Drying Temperature	95 – 105	°C	
Drying Time	2 – 4	Hrs	
Drying Time (Cumulative)	12	Hrs	
Maximum Moisture Content	0.07	%	
Melt Temperature	220 – 260	°C	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Barrel - Zone 1 Temperature	220 – 260	°C	
Barrel - Zone 2 Temperature	220 – 260	°C	
Barrel - Zone 3 Temperature	220 – 260	°C	
Barrel - Zone 4 Temperature	220 – 260	°C	
Hopper Temperature	80 – 120	°C	
Adapter Temperature	220 – 260	°C	
Die Temperature	220 – 260	°C	
Calibrator Temperature	30 – 60	°C	
Water Bath Temperature	30 – 50	°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.

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