NORYL™ RESIN NH6010B

REGION ASIA

DESCRIPTION

NORYL™ NH6010B resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). 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.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	64	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	53	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4.6	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	20	%	ASTM D 638
Tensile Modulus, 5 mm/min	2220	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	100	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2390	MPa	ASTM D 790
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			
Izod Impact, notched, 23°C	300	J/m	ASTM D 256
Izod Impact, notched, -30°C	181	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	52	J	ASTM D 3763
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			
Vicat Softening Temp, Rate B/50	143	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	122	°C	ASTM D 648
CTE, -40°C to 40°C, flow	6.7E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.7E-05	1/°C	ASTM E 831
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
PHYSICAL			

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Specific Gravity	1.11	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.8	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	5.6	g/10 min	ASTM D 1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.2	%	ISO 62
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			
Volume Resistivity	7.62E+17	Ohm-cm	ASTM D 257
Surface Resistivity	1.25E+18	Ohm	ASTM D 257
Dielectric Strength, in oil, 3.2 mm	34.1	kV/mm	ASTM D 149
Relative Permittivity, 1 MHz	2.78	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0029	-	ASTM D 150
Volume Resistivity	7.62E+17	Ohm-cm	IEC 60093
Surface Resistivity, ROA	1.25E+18	Ohm	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
FLAME CHARACTERISTICS [1]			
M1 Flame Class Rating	2	mm	NF P 92501
Flame Spread Index (1.52mm)	15	-	ASTM E 162
NBS Smoke Density, Flaming, 4 min (1.52mm)	30	-	ASTM E 662
NBS Smoke Density, Flaming, 4 min (3.2 mm)	30	-	ASTM E 662
NBS Smoke Density, Flaming, 20 min (3.2 mm)	120	-	ASTM E 662
NBS Smoke Density, Non-Flaming, 4 min (1.52mm)	7	-	ASTM E 662
Oxygen Index (LOI)	33	%	ISO 4589
Toxicity	0	-	ISO 5659-2
Toxicity (3 mm)	21.76	-	NF X70-100
F1 Class Smoke and Toxicity Rating	3	mm	NF F16-101
Ds_4min	70	-	ISO 5659-2
Heat Release, MAHRE	33.6	kW/m²	ISO 5660-1
Lateral Flame Spread, CFE	20	kW/m²	ISO 5658-2
INJECTION MOLDING			
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			

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	
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) 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.

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