NORYL™ RESIN NH4030B

REGION ASIA

DESCRIPTION

NORYL™ NH4030B resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This high flow, injection moldable and extrusion grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 1.5mm along with lower smoke production upon burning and low specific gravity for light-weight parts. NORYL NH4030B resin may be an excellent candidate for rail interior, electrical conduit, cable management, and ceiling-mounted electric applications.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	56	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	46	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4.2	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	27.5	%	ASTM D 638
Tensile Modulus, 5 mm/min	2450	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	90	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2400	MPa	ASTM D 790
Tensile Stress, yield, 50 mm/min	54	MPa	ISO 527
Tensile Stress, break, 50 mm/min	47	MPa	ISO 527
Tensile Strain, break	27.8	%	ISO 527
Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Tensile Strain, break, 50 mm/min	27.8	%	ISO 527
Tensile Modulus, 1 mm/min	2430	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	90	MPa	ISO 178
Flexural Modulus, 2 mm/min	2380	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	200	J/m	ASTM D 256
Izod Impact, notched, -30°C	117	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	46	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	15	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	11	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	19	kJ/m²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	127	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	106	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	112	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.39E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.54E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	8.39E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.54E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	127	°C	ISO 306
Vicat Softening Temp, Rate B/120	128	°C	ISO 306

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	107	°C	ISO 75/Af
PHYSICAL			
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	18.3	g/10 min	ASTM D 1238
Melt Flow Rate, 300°C/5.0 kgf	42.7	g/10 min	ASTM D 1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.27	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.04	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	17	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	41	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS [1]			
Flame Spread Index (1.52mm)	15	-	ASTM E 162
Vertical Burn a (60s, 1.52mm) passes at	0	sec	FAR 25.853
Vertical Burn b (12s, 1.52mm) passes at	4	sec	FAR 25.853
NBS Smoke Density, Flaming, 4 min (1.52mm)	29	-	ASTM E 662
NBS Smoke Density, Flaming, 4 min (3.2 mm)	35	-	ASTM E 662
NBS Smoke Density, Flaming, 20 min (3.2 mm)	126	-	ASTM E 662
Draeger Tube Toxicity, Non-Flaming (1.52mm)	Pass	-	AITM 3.0005, ABD0031
NBS Smoke Density, Non-Flaming, 4 min (1.52mm)	7	-	ASTM E 662
Draeger Tube Toxicity, Flaming (1.52mm)	Pass	-	AITM 3.0005, ABD0031
INJECTION MOLDING			
Drying Temperature	95 – 105	°C	
Drying Time	2 – 4	hrs	
Drying Time (Cumulative)	12	hrs	
Maximum Moisture Content	0.07	%	
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	65 – 100	°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	
SHEET EXTRUSION			
Drying Temperature	95 – 105	°C	
Drying Time	2 – 4	hrs	
Drying Time (Cumulative)	12	hrs	
Maximum Moisture Content	0.07	%	
Melt Temperature	215 – 250	°C	
Barrel - Zone 1 Temperature	215 – 250	°C	
Barrel - Zone 2 Temperature	215 – 250	°C	
Barrel - Zone 3 Temperature	215 – 250	°C	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Barrel - Zone 4 Temperature	215 – 250	°C	
Adapter Temperature	215 – 250	°C	
Die Temperature	215 – 250	°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	215 – 250	°C	
Barrel - Zone 1 Temperature	215 – 250	°C	
Barrel - Zone 2 Temperature	215 – 250	°C	
Barrel - Zone 3 Temperature	215 – 250	°C	
Barrel - Zone 4 Temperature	215 – 250	°C	
Hopper Temperature	80 – 120	°C	
Adapter Temperature	215 – 250	°C	
Die Temperature	215 – 250	°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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