

# NORYL™ RESIN NH4030B

REGION ASIA

## DESCRIPTION

NH4030B is a modified PPE-HIPS blend that presents an excellent balance of non halogenated flame retardance, lower smoke production upon burning and low specific gravity for light weight parts. NORYL NH4030B is available in custom colors and may be an excellent material candidate for applications requiring light weight parts and may be processed by injection molding or extrusion techniques.

## TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
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
<b>IMPACT</b>			
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/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80°10°4 -30°C	11	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm	19	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
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
HDT/Af, 1.8 MPa Flatw 80°10°4 sp=64mm	107	°C	ISO 75/Af
Relative Temp Index, Mech w/o impact	105	°C	UL 746B

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Elec	105	°C	UL 746B
<b>PHYSICAL</b>			
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/cm <sup>3</sup>	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	cm <sup>3</sup> /10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	41	cm <sup>3</sup> /10 min	ISO 1133
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94V-0 Flame Class Rating	1.5	mm	UL 94
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
<b>INJECTION MOLDING</b>			
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	
<b>SHEET EXTRUSION</b>			
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	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Barrel - Zone 3 Temperature	215 – 250	°C	
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	
<b>PROFILE EXTRUSION</b>			
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	

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