NORYL™ RESIN NH4030B

REGION EUROPE

DESCRIPTION

NORYL NH4030B resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). 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.

GENERAL INFORMATION	
Features	Flame Retardant, High Flow, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, 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
Consumer	Commercial Appliance
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Electrical
Mass Transportation	Rail

TYPICAL PROPERTY VALUES

Revision 20241016

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	56	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	46	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	4.2	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	27.5	%	ASTM D638
Tensile Modulus, 5 mm/min	2450	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	90	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2400	MPa	ASTM D790
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 [1]			
Izod Impact, notched, 23°C	200	J/m	ASTM D256

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched, -30°C	117	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	46	J	ASTM D3763
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 [1]			
Vicat Softening Temp, Rate B/50	127	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	106	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	112	°C	ASTM D648
CTE, -40°C to 40°C, flow	8.39E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	8.54E-05	1/°C	ASTM E831
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
PHYSICAL [1]			
Specific Gravity	1.11	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [2]	0.5 – 0.8	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	18.3	g/10 min	ASTM D1238
Melt Flow Rate, 300°C/5.0 kgf	42.7	g/10 min	ASTM D1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.27	%	ISO 62-1
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 [3]			
Flame Spread Index (1.52mm)	15	-	ASTM E162
Vertical Burn a (60s, 1.52mm) passes at	0	Seconds	FAR 25.853
Vertical Burn b (12s, 1.52mm) passes at	4	Seconds	FAR 25.853
NBS Smoke Density, Flaming, 4 min (1.52mm)	29	-	ASTM E662
NBS Smoke Density, Flaming, 4 min (3.2 mm)	35	-	ASTM E662
NBS Smoke Density, Flaming, 20 min (3.2 mm)	126	-	ASTM E662
Draeger Tube Toxicity, Non-Flaming (1.52mm)	Pass	-	AITM 3.0005, ABD0031
NBS Smoke Density, Non-Flaming, 4 min (1.52mm)	7	-	ASTM E662
Draeger Tube Toxicity, Flaming (1.52mm)	Pass	-	AITM 3.0005, ABD0031
INJECTION MOLDING [4]			
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	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	
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) 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) 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.

(3) 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.

(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

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.