

NORYL™ RESIN NH4050A

DESCRIPTION

NORYL™ NH4050A resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 1.5mm along with UL746C Outdoor Suitability rating of F2. This material also exhibits chemical resistance to battery acids, hydrolytic stability, high impact and heat resistance, and low specific gravity for light-weight parts. NORYL™ NH4050A resin may be an excellent candidate for lead acid battery housings, covers, and enclosure applications.

GENERAL INFORMATION	
Additives	Flame Retardant
Features	Flame Retardant, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Electrical and Electronics	Energy Management, Electronic Components
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20260813

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL ⁽¹⁾			
Tensile Modulus, 50 mm/min	2694	MPa	ASTM D638
Tensile Stress, yld, Type I, 50 mm/min	52	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	70	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	4	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	7	%	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	2450	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	68	MPa	ISO 527
Tensile Stress, break, 50 mm/min	51	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Tensile Strain, break, 50 mm/min	20	%	ISO 527
Tensile Modulus, 1 mm/min	2667	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	100	MPa	ISO 178
Flexural Modulus, 2 mm/min	2668	MPa	ISO 178
IMPACT ⁽¹⁾			
Izod Impact, notched, 23°C	200	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	72	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	9	kJ/m²	ISO 180/1A
THERMAL ⁽¹⁾			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 60°C, flow	7.0E-05	1/°C	ASTM E831
CTE, -40°C to 60°C, xflow	7.0E-05	1/°C	ASTM E831
Vicat Softening Temp, Rate B/50	119	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	97	°C	ASTM D648
Vicat Softening Temp, Rate B/50	120	°C	ISO 306
Vicat Softening Temp, Rate B/120	122	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	98	°C	ISO 75/Af
PHYSICAL ⁽¹⁾			
Mold Shrinkage, flow	0.3 – 0.6	%	SABIC method
Specific Gravity	1.12	-	ASTM D792
Melt Flow Rate, 280°C/5.0 kgf	22	g/10 min	ASTM D1238
Density	1.12	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.02	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	22	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS ⁽²⁾			
UL Yellow Card Link	E121562	-	-
UL Recognized, 94V-0 Flame Class Rating	1.5	mm	UL 94
INJECTION MOLDING ⁽³⁾			
Drying Temperature	90 – 110	°C	
Drying Time	3 – 5	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	280 – 320	°C	
Nozzle Temperature	280 – 320	°C	
Front - Zone 3 Temperature	280 – 320	°C	
Middle - Zone 2 Temperature	280 – 320	°C	
Rear - Zone 1 Temperature	250 – 280	°C	
Mold Temperature	90 – 120	°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) 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.

MORE INFORMATION

For curve data and CAE cards, please visit and register at <https://materialfinder.sabic-specialties.com>

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