NORYL™ RESIN NH5020

REGION ASIA

DESCRIPTION

NORYL NH5020 resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and exhibits high heat resistance with thin-wall FR performance. NORYL NH5020 resin carries a UL94 flame rating of V0 at 0.75mm along with a UL746C Outdoor Suitability rating of F1. The material offers a good balance of affordable high heat, flow, hydrolytic stability, excellent creep resistance, dimensional stability and is a good candidate for photovoltaic / solar connectors, UPS Inverters / chargers, and outdoor enclosure applications.

GENERAL INFORMATION	
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, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Building and Construction	Building Component
Electrical and Electronics	Energy Management, Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20250130

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	79	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	62	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	15	%	ASTM D638
Tensile Modulus, 50 mm/min	2720	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	122	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3000	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	80	MPa	ISO 527
Tensile Stress, break, 50 mm/min	77	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.7	%	ISO 527
Tensile Strain, break, 50 mm/min	5.6	%	ISO 527
Tensile Modulus, 1 mm/min	3050	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	126	MPa	ISO 178
Flexural Modulus, 2 mm/min	2980	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	91	J/m	ASTM D256
Izod Impact, notched, -30°C	59	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	19	J	ASTM D3763

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 +23°C	8	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m²	ISO 179/1eA
THERMAL [1]			
Vicat Softening Temp, Rate B/50	137	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	122	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	117	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	133	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	122	°C	ASTM D648
CTE, -40°C to 40°C, flow	6.12E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.84E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	6.12E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.84E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	138	°C	ISO 306
Vicat Softening Temp, Rate B/120	139	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	119	°C	ISO 75/Af
PHYSICAL [1]			
Specific Gravity	1.11	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [2]	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	9.8	g/10 min	ASTM D1238
Density	1.11	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.25	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	10	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Dielectric Strength, in oil, 3.2 mm	49	kV/mm	IEC 60243-1
INJECTION MOLDING [3]			
Drying Temperature	105 – 110	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	275 – 305	°C	
Nozzle Temperature	275 – 305	°C	
Front - Zone 3 Temperature	265 – 305	°C	
Middle - Zone 2 Temperature	255 – 300	°C	
Rear - Zone 1 Temperature	245 – 295	°C	
Mold Temperature	70 – 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	

(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) 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

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.