NHP5054

REGION EUROPE

DESCRIPTION

NORYL NHP5054 resin is a 20% glass fiber 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 0.75mm for thin-wall molding capability. NORYL NHP5054 is based on a unique co-polymer technology and exhibits good dimensional stability, high heat resistance, strong electrical performance, and very low specific gravity. It is an excellent candidate for electrical vehicle (EV) battery housings, automotive under-the-hood enclosures and components where thin-wall FR, modulus retention, and high heat resistance are required.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, High stiffness/Strength, High temperature resistance, No PFAS intentionally added
Fillers	Glass Fiber (Total fluorine >50ppm only from inorganic fluorine)
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries
Electrical and Electronics	Energy Management, Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20260205

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL (1) (2) (3) (4) (5)			
Tensile Strain, brk, Type I, 5 mm/min	2.5	%	ASTM D638
Tensile Stress, yld, Type I, 5 mm/min	120	MPa	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	150	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	6000	MPa	ASTM D790
Tensile Strain, break, 5 mm/min	2.4	%	ISO 527
Tensile Stress, break, 5 mm/min	110	MPa	ISO 527
Tensile Modulus, 1 mm/min	7300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	145	MPa	ISO 178
Flexural Modulus, 2 mm/min	6000	MPa	ISO 178
Ball Indentation Hardness, H358/30	215	MPa	ISO 2039-1
IMPACT (1) (2) (3) (4) (5)			
Izod Impact, notched, 23°C	100	J/m	ASTM D256
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	35	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	36	kJ/m²	ISO 179/1eU
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	9	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	8	kJ/m²	ISO 179/1eA
THERMAL (1) (2) (3) (4) (5)			
HDT, 1.82 MPa, 6.4 mm, unannealed	120	°C	ASTM D648

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/50	128	°C	ISO 306
Vicat Softening Temp, Rate B/120	130	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	115	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	122	°C	ISO 75/Bf
CTE, -40°C to 40°C, flow	2.1E-5	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	5.7E-5	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	3.2E-5	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	10.3E-5	1/°C	ISO 11359-2
Relative Temp Index, Elec [6]	125	°C	UL 746B
Relative Temp Index, Mech w/impact [6]	115	°C	UL 746B
Relative Temp Index, Mech w/o impact [6]	125	°C	UL 746B
PHYSICAL [1] [2] [3] [4] [5]			
Specific Gravity	1.3	-	ASTM D792
Melt Flow Rate, 250°C/10.0 kgf	8	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/10.0 kg	22	cm³/10 min	ISO 1133
Mold Shrinkage on Tensile Bar, flow [7]	0.27	%	SABIC method
Density	1.27	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.24	%	ISO 62
FLAME CHARACTERISTICS [6] [8]			
UL Yellow Card Link	E207780-101793092	-	-
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
Glow Wire Flammability Index, 3.0 mm [9]	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm [9]	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm [9]	800	°C	IEC 60695-2-13
INJECTION MOLDING [10]			
Drying Temperature	105 – 110	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	280 – 310	°C	
Nozzle Temperature	280 – 310	°C	
Front - Zone 3 Temperature	270 – 310	°C	
Middle - Zone 2 Temperature	260 – 305	°C	
Rear - Zone 1 Temperature	250 – 300	°C	
Mold Temperature	75 – 105	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 70	%	

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(1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity.
(2) All properties, except the melt volume rate are measured on injection moulded samples.
(3) All samples are prepared according to ISO 294.
(4) Only typical data for material selection purpose.Not to be used for part or tool design.
(5) 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.
(6) 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.
(7) 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.
(8) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
(9) Internal measurement SABIC
(10) 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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