NHP9023

REGION EUROPE

DESCRIPTION

NORYL NHP9023 resin is a 15% 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 1.5mm and V1 at 0.75mm for thin-wall molding capability. NORYL NHP9023 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 copier fuser units, business equipment internal components, and electrical applications where thin-wall FR, modulus retention, and high heat resistance are required.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability, Heat Stabilized, 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, Impact resistant, No PFAS intentionally added
Fillers	Glass Fiber
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Consumer	Commercial Appliance
Electrical and Electronics	Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241015

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1] [2] [3] [4]			
Tensile Stress, brk, Type I, 5 mm/min	112	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2.9	%	ASTM D638
Tensile Modulus, 5 mm/min	5400	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	163	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	5200	MPa	ASTM D790
Tensile Stress, break, 5 mm/min	90	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.7	%	ISO 527
Tensile Modulus, 1 mm/min	5500	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	140	MPa	ISO 178
Flexural Modulus, 2 mm/min	4900	MPa	ISO 178
Hardness, Rockwell R	121	-	ASTM D785
IMPACT [1] [2] [3] [4]			
Izod Impact, notched, 23°C	500	J/m	ASTM D256
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	27	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	31	kJ/m²	ISO 179/1eU
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m²	ISO 179/1eA
Izod Impact, unnotched 80*10*4 +23°C	27	kJ/m²	ISO 180/1U

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched 80*10*4 -30°C	28	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	7	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
THERMAL [1] [2] [3] [4]			
HDT, 1.82 MPa, 6.4 mm, unannealed	153	°C	ASTM D648
Vicat Softening Temp, Rate B/50	161	°C	ISO 306
Vicat Softening Temp, Rate B/120	163	°C	ISO 306
CTE, -40°C to 40°C, flow	3.8E-5	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	3.5E-5	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	6.4E-5	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
PHYSICAL [1] [2] [3] [4]			
Specific Gravity	1.21	-	ASTM D792
Melt Flow Rate, 300°C/5.0 kgf	20	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/10.0 kg	17	cm³/10 min	ISO 1133
Mold Shrinkage on Tensile Bar, flow [5]	0.38	%	SABIC method
Density	1.21	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.2	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.11	%	ISO 62
ELECTRICAL [4]			
Comparative Tracking Index [6]	175	V	IEC 60112
FLAME CHARACTERISTICS [7]			
Glow Wire Flammability Index 960°C, passes at [6]	3.2	mm	IEC 60695-2-12
INJECTION MOLDING [8]			
Drying Temperature	110 – 120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	300 – 325	°C	
Nozzle Temperature	300 – 325	°C	
Front - Zone 3 Temperature	290 – 325	°C	
Middle - Zone 2 Temperature	275 – 320	°C	
Rear - Zone 1 Temperature	265 – 315	°C	
Mold Temperature	80 – 110	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 70	%	

(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. All samples are prepared according to ISO 294.
(3) Only typical data for material selection purpose.Not to be used for part or tool design.
(4) 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.
(5) 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.
(6) Value shown here is based on internal measurement.
(7) 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.
(8) 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