NORYL™ RESIN NHP9023

REGION ASIA

DESCRIPTION

NORYL™ NHP9023 resin is a 15% glass reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). 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.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1] [2] [3]			
Tensile Stress, brk, Type I, 5 mm/min	112	MPa	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	2.9	%	ASTM D 638
Tensile Modulus, 5 mm/min	5400	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	163	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	5200	MPa	ASTM D 790
Hardness, Rockwell R	121	-	ASTM D 785
Tensile Stress, break, 5 mm/min	112	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.7	%	ISO 527
Tensile Modulus, 1 mm/min	5600	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	163	MPa	ISO 178
Flexural Modulus, 2 mm/min	5200	MPa	ISO 178
IMPACT [1] [2] [3]			
Izod Impact, unnotched, 23°C	500	J/m	ASTM D 4812
Izod Impact, unnotched, -30°C	500	J/m	ASTM D 4812
Izod Impact, notched, 23°C	72	J/m	ASTM D 256
Izod Impact, notched, -30°C	61	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	10	J	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	27	kJ/m²	ISO 180/1U
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
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m²	ISO 179/1eA
THERMAL [1] [2] [3]			
HDT, 1.82 MPa, 3.2mm, unannealed	153	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	154	°C	ASTM D 648
CTE, 23°C to 80°C, flow	3.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	6.4E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	161	°C	ISO 306
Vicat Softening Temp, Rate B/120	163	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	155	°C	ISO 75/Af
Relative Temp Index, Elec	65	°C	UL 746B
Relative Temp Index, Mech w/impact	65	°C	UL 746B

© 2019 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Mech w/o impact	65	°C	UL 746B
PHYSICAL [1] [2] [3]			
Specific Gravity	1.21	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5	%	SABIC method
Melt Flow Rate, 300°C/5.0 kgf	20	g/10 min	ASTM D 1238
Density	1.21	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.2	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
ELECTRICAL			
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
FLAME CHARACTERISTICS [4]			
UL Yellow Card Link	E207780-102131113	-	-
UL Recognized, 94V-1 Flame Class Rating	≥0.75	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
INJECTION MOLDING			
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) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

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.

© 2019 Copyright by SABIC. All rights reserved