

# NORYL™ RESIN NHP9023

REGION ASIA

## DESCRIPTION

NORYL NHP9023 resin is 15% glass fiber reinforced, with a non-halogen flame retardant (UL94 V-0 at 1.5 mm) and high heat distortion temperature (150 C)

## TYPICAL PROPERTY VALUES

Revision 20181012

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
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
<b>IMPACT</b>			
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/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80°10°4 -30°C	28	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80°10°4 +23°C	7	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80°10°4 -30°C	6	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm	7	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
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+01	1/°C	ASTM E 831
CTE, 23°C to 80°C, xflow	6.4E+01	1/°C	ASTM E 831
CTE, 23°C to 80°C, flow	3.5E+01	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	6.4E+01	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

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Mech w/o impact	65	°C	UL 746B
<b>PHYSICAL</b>			
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/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.2	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
<b>ELECTRICAL</b>			
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94V-1 Flame Class Rating	0.75	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	1.5	mm	UL 94
<b>INJECTION MOLDING</b>			
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	%	

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