

# NORYL™ RESIN NH7114

REGION AMERICAS

## DESCRIPTION

NORYL NH7114 resin is a 20% glass reinforced, modified PPE-PS blend. The material uses non-halogenated flame retardants to achieve UL94 flame ratings while offering an exceptional balance of strength and dimensional stability. This grade can be processed via extrusion or injection molding. NORYL NH7114 is available in custom colors and may be an excellent material candidate for use in electrical and electronics markets.

## TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	107	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	107	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	2	%	ASTM D 638
Tensile Modulus, 5 mm/min	6800	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	152	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	6000	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	105	MPa	ISO 527
Tensile Stress, break, 5 mm/min	105	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2	%	ISO 527
Tensile Strain, break, 5 mm/min	2	%	ISO 527
Tensile Modulus, 1 mm/min	6800	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	150	MPa	ISO 178
Flexural Modulus, 2 mm/min	6300	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	77	J/m	ASTM D 256
Izod Impact, notched, -30°C	70	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	15	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	27	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	8	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	30	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	30	kJ/m <sup>2</sup>	ISO 179/1eU
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	148	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	140	°C	ASTM D 648
CTE, -40°C to 40°C, flow	5.14E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.8E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	5.14E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.8E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	148	°C	ISO 306

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/120	150	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	140	°C	ISO 75 /Af
Relative Temp Index, Elec	110	°C	UL 746B
Relative Temp Index, Mech w/impact	105	°C	UL 746B
Relative Temp Index, Mech w/o impact	110	°C	UL 746B
<b>PHYSICAL</b>			
Specific Gravity	1.25	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.2 – 0.3	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	5.8	g/10 min	ASTM D 1238
Density	1.25	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.22	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	10	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Dielectric Strength, in oil, 3.2 mm	25	kV/mm	ASTM D 149
Relative Permittivity, 1 MHz	2.73	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0029	-	ASTM D 150
Hot Wire Ignition {PLC}	0	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Voltage Arc Resistance {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Volume Resistivity	>1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>5.E+17	Ohm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.7	-	IEC 60250
Dissipation Factor, 1 MHz	0.0029	-	IEC 60250
<b>FLAME CHARACTERISTICS</b>			
UL Compliant, 94V-1 Flame Class Rating	1.5	mm	UL 94 by SABIC-IP
UL Compliant, 94V-0 Flame Class Rating	6	mm	UL 94 by SABIC-IP
UL Compliant, 94-5VA Rating	2	mm	UL 94 by SABIC-IP
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	800	°C	IEC 60695-2-13
Oxygen Index (LOI)	30	%	ISO 4589
<b>INJECTION MOLDING</b>			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 3	hrs	
Melt Temperature	280 – 300	°C	
Nozzle Temperature	260 – 280	°C	
Front - Zone 3 Temperature	280 – 300	°C	
Middle - Zone 2 Temperature	260 – 280	°C	
Rear - Zone 1 Temperature	240 – 260	°C	
Hopper Temperature	60 – 80	°C	
Mold Temperature	80 – 120	°C	



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