NORYL™ RESIN NH8000

DESCRIPTION

NORYL NH8000 resin is a non-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 5VA at 2mm and V0 at 1.5mm. NORYL NH8000 resin offers strong electrical performance, low moisture absorption, dimensional stability, and hydrolytic stability. NH8000 is targeted for indoor and outdoor electrical housings, components and connectors.

GENERAL INFORMATION	
Features	Flame Retardant, Hydrolytic Stability, Dimensional stability, High temperature resistance, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	70	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	53	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.0	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	11.1	%	ASTM D638
Tensile Modulus, 50 mm/min	2360	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	102	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2220	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	70	MPa	ISO 527
Tensile Stress, break, 50 mm/min	53	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.9	%	ISO 527
Tensile Strain, break, 50 mm/min	11.9	%	ISO 527
Tensile Modulus, 1 mm/min	2390	MPa	ISO 527
Flexural Strength, 2 mm/min	107	MPa	ISO 178
Flexural Modulus, 2 mm/min	2460	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	198	J/m	ASTM D256
Izod Impact, notched, -30°C	76	J/m	ASTM D256
Izod Impact, notched 80*10*4 +23°C	16	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	7	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	17	kJ/m²	ISO 179/1eA

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	161	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	146	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	161	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	146	°C	ISO 75/Af
CTE, -40°C to 40°C, flow	6.6E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.3E-05	1/°C	ASTM E831
Vicat Softening Temp, Rate B/50	164	°C	ISO 306
Vicat Softening Temp, Rate B/120	165	°C	ISO 306
PHYSICAL [1]			
Specific Gravity	1.1	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.12	%	ISO 62-1
Moisture Absorption, (23°C/50% RH/24hrs)	0.04	%	ISO 62-4
Melt Flow Rate, 280°C/5.0 kgf	3.8	g/10 min	ASTM D1238
Melt Flow Rate, 300°C/5.0 kgf	10.4	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/5.0 kg	3.6	cm³/10 min	ISO 1133
ELECTRICAL [2]			
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104521255	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.0	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	800	°C	IEC 60695-2-13
INJECTION MOLDING [3]			
Drying Temperature	110 – 120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	290 – 325	°C	
Nozzle Temperature	290 – 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	
Screw Speed	20 – 100	rpm	

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(1) 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.

(2) 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.

(3) 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.

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