

NORYLTM RESIN GFN2

REGION AMERICAS

DESCRIPTION

NORYLTM GFN2 resin is a 20% glass reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This general-purpose injection moldable grade exhibits very low moisture absorption, high strength, hydrolytic stability, Low warpage, low specific gravity, and dimensional stability. NORYL GFN2 carries a UL746C outdoor suitability rating of F1 and is an excellent candidate for a variety of indoor and outdoor applications including construction, electrical components + displays, lawn and garden equipment. *See NORYL GFN2F resin for FDA food compliant / NSF version.

TYPICAL PROPERTY VALUES

Revision 20200610

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, brk, Type I, 5 mm/min	90	MPa	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	2.6	%	ASTM D 638
Tensile Modulus, 5 mm/min	6200	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	160	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	5800	MPa	ASTM D 790
Hardness, Rockwell L	106	-	ASTM D 785
Tensile Stress, break, 5 mm/min	97	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.5	%	ISO 527
Tensile Modulus, 1 mm/min	7070	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	167	MPa	ISO 178
Flexural Modulus, 2 mm/min	6540	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	650	J/m	ASTM D 4812
Izod Impact, notched, 23°C	119	J/m	ASTM D 256
Izod Impact, notched, -40°C	96	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	22	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	11	kJ/m ²	ISO 180/1A
Charpy Impact, notched, 23°C	11	kJ/m ²	ISO 179/2C
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed	140	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	135	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	143	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	137	°C	ASTM D 648
CTE, -40°C to 40°C, flow	2.89E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.26E-05	1/°C	ASTM E 831
Vicat Softening Temp, Rate B/50	143	°C	ISO 306
Vicat Softening Temp, Rate B/120	146	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	143	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	137	°C	ISO 75/Ae
Relative Temp Index, Elec ⁽¹⁾	90	°C	UL 746B
Relative Temp Index, Mech w/impact ⁽¹⁾	90	°C	UL 746B
Relative Temp Index, Mech w/o impact ⁽¹⁾	90	°C	UL 746B

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
PHYSICAL			
Specific Gravity	1.2	-	ASTM D 792
Water Absorption, (23°C/24hrs)	0.06	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm	0.2 – 0.5	%	SABIC method
Melt Flow Rate, 300°C/5.0 kgf	9	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 300°C/5.0 kg	8	cm ³ /10 min	ISO 1133
ELECTRICAL			
Dielectric Strength, in oil, 3.2 mm	16.5	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	2.86	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.0008	-	ASTM D 150
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 3	≥6	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 4	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥6	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 4	≥1.5	mm	UL 746A
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D 495
FLAME CHARACTERISTICS ⁽¹⁾			
UL Yellow Card Link	E121562-221161	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
Oxygen Index (LOI)	26	%	ASTM D 2863
UV-light, water exposure/immersion	F1	-	UL 746C
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) 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.

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