NORYL™ RESIN GFN20

REGION ASIA

DESCRIPTION

NORYL™ GFN20 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 GFN20 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 GFN20F resin for FDA food compliant / NSF version.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	100	MPa	ASTM D 638
Tensile Stress, yld, Type I, 10 mm/min	88	MPa	SABIC - Japan Method
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Strain, yld, Type I, 10 mm/min	6 – 8	%	SABIC - Japan Method
Tensile Modulus, 5 mm/min	6500	MPa	ASTM D 638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	131	MPa	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	5570	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	90	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	6000	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	150	MPa	ISO 178
Flexural Modulus, 2 mm/min	5400	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	550	J/m	ASTM D 4812
Izod Impact, notched, 23°C	88	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	20	J	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	30	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	10	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	9	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	8	kJ/m²	ISO 179/1eA
THERMAL			
HDT, 1.82 MPa, 3.2mm, unannealed	137	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	138	°C	ASTM D 648
CTE, -30°C to 30°C	0.000028 – 0.000045	1/°C	TMA
Vicat Softening Temp, Rate B/50	140	°C	ISO 306
Vicat Softening Temp, Rate B/120	147	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	135	°C	ISO 75/Af
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
PHYSICAL			
Specific Gravity	1.23	-	ASTM D 792

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Water Absorption, 24 hours	0.06	%	ASTM D 570
Mold Shrinkage, flow	0.2 – 0.4	%	SABIC method
Melt Flow Rate, 300°C/5.0 kgf	11.7	g/10 min	ASTM D 1238
Water Absorption, 23°C/24hrs	0.12	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.04	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	2	cm³/10 min	ISO 1133
ELECTRICAL			
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 4	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥3	mm	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D 495
FLAME CHARACTERISTICS (1)			
UL Yellow Card Link	E207780-228545	-	-
UL Yellow Card Link 2	E45587-237020	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
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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