



## NORYL™ Resin GFN2

### Europe-Africa-Middle East: COMMERCIAL

NORYL GFN2 is a standard 20 % glass fibre reinforced material with a HDT/A of 130C according ISO 75. NORYL GFN2 can be used for all applications where a higher modulus is required. NORYL GFN2 is available in all colours.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>MECHANICAL</b>			
Taber Abrasion, CS-17, 1 kg	60	mg/1000cy	SABIC Method
Tensile Stress, yield, 5 mm/min	80	MPa	ISO 527
Tensile Stress, break, 5 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2.5	%	ISO 527
Tensile Strain, break, 5 mm/min	2.5	%	ISO 527
Tensile Modulus, 1 mm/min	6000	MPa	ISO 527
Flexural Stress, break, 2 mm/min	120	MPa	ISO 178
Flexural Modulus, 2 mm/min	4500	MPa	ISO 178
Hardness, H358/30	100	MPa	ISO 2039-1
<b>IMPACT</b>			
Izod Impact, unnotched 80*10*4 +23°C	23	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	23	kJ/m <sup>2</sup>	ISO 180/1U
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	25	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	25	kJ/m <sup>2</sup>	ISO 179/1eU
<b>THERMAL</b>			
Thermal Conductivity	0.26	W/m-°C	ISO 8302
CTE, 23°C to 80°C, flow	3.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/50	135	°C	ISO 306
Vicat Softening Temp, Rate B/120	140	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	130	°C	ISO 75/Be

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.  
(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.  
(5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.  
(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

Source GMD, last updated:

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>THERMAL</b>			
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	120	°C	ISO 75/Ae
Relative Temp Index, Elec	50	°C	UL 746B
Relative Temp Index, Mech w/impact	50	°C	UL 746B
Relative Temp Index, Mech w/o impact	50	°C	UL 746B
<b>PHYSICAL</b>			
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.2 - 0.4	%	SABIC Method
Density	1.25	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.2	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 280°C/10.0 g	15	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Volume Resistivity	1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	18	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.9	-	IEC 60250
Dissipation Factor, 50/60 Hz	0	-	IEC 60250
Dissipation Factor, 1 MHz	0.003	-	IEC 60250
Comparative Tracking Index	250	V	IEC 60112
Relative Permittivity, 50/60 Hz	2.9	-	IEC 60250
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94HB Flame Class Rating (3)	1.5	mm	UL 94
Glow Wire Flammability Index 750°C, passes at	3.2	mm	IEC 60695-2-12
Oxygen Index (LOI)	26	%	ISO 4589

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
<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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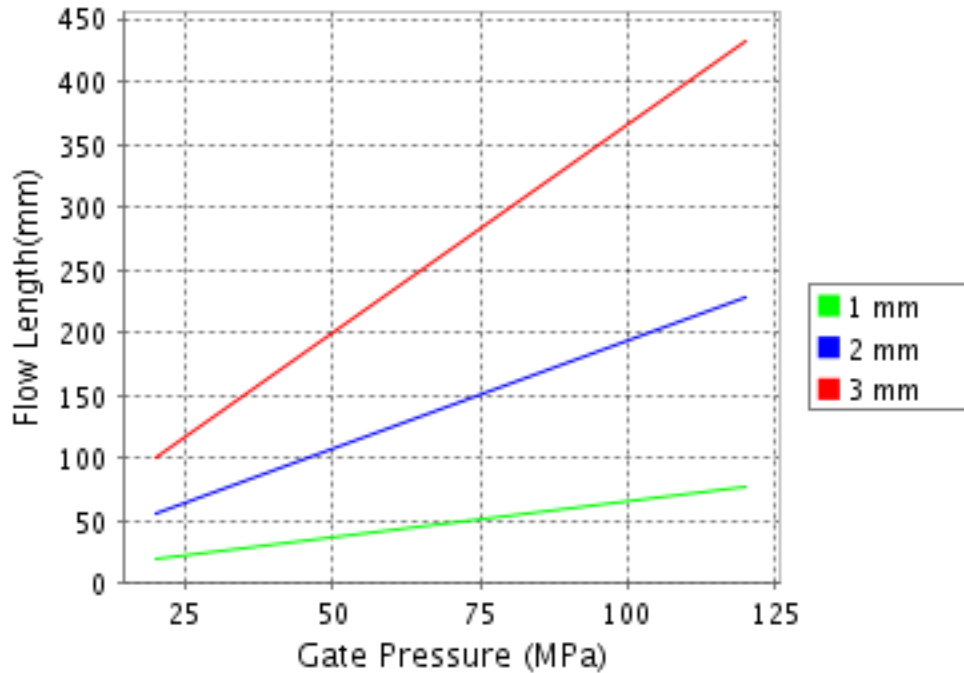
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**CALCULATED FLOW LENGTH INDICATION**  
**Moldflow® Radial Flow Analysis**  
**NORYL® GFN2**  
**Melt Temperature : 290°C**  
**Mold Temperature : 100°C**



**Note: Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.**  
**® Moldflow is a registered trademark of the Moldflow Corporation.**

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