

# NORYL GTX™ RESIN GTX840

REGION EUROPE

## DESCRIPTION

NORYL GTX840 resin is a 40% glass fiber reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade has high stiffness (flexural modulus 11860 MPa), excellent chemical resistance, and high heat resistance. NORYL GTX GTX840 resin is an excellent candidate for a wide variety of applications including automotive under-the-hood and water management.

| GENERAL INFORMATION   |   |
|-----------------------|---|
| Features              | Chemical Resistance, Hydrolytic Stability, Low Warpage, Low Moisture Absorption, Low Specific Gravity, Dimensional stability, High stiffness/Strength, High temperature resistance, No PFAS intentionally added |
| Fillers               | Glass Fiber   |
| Polymer Types         | Polyphenylene Ether + PA (PPE+Nylon)  |
| Processing Techniques | Injection Molding   |

| INDUSTRY                   | SUB INDUSTRY                             |
|----------------------------|--|
| Automotive                 | Automotive EV, Automotive Under the Hood |
| Building and Construction  | Water Management                         |
| Electrical and Electronics | Electronic Components                    |
| Industrial                 | Electrical                               |

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                   | TYPICAL VALUES | UNITS             | TEST METHODS |
|--|----------------|-------------------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>             |                |                   |              |
| Tensile Stress, brk, Type I, 5 mm/min        | 178            | MPa               | ASTM D638    |
| Tensile Strain, brk, Type I, 5 mm/min        | 2              | %                 | ASTM D638    |
| Tensile Modulus, 5 mm/min                    | 13520          | MPa               | ASTM D638    |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 249            | MPa               | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 11860          | MPa               | ASTM D790    |
| Hardness, Rockwell R                         | 108            | -                 | ASTM D785    |
| Tensile Stress, break, 5 mm/min              | 198            | MPa               | ISO 527      |
| Tensile Strain, break, 5 mm/min              | 2              | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 13940          | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 280            | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 12270          | MPa               | ISO 178      |
| <b>IMPACT <sup>(1)</sup></b>                 |                |                   |              |
| Izod Impact, notched, 23°C                   | 94             | J/m               | ASTM D256    |
| Izod Impact, notched, -30°C                  | 90             | J/m               | ASTM D256    |
| Izod Impact, notched 80°10°4 +23°C           | 11             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80°10°4 -30°C           | 11             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm   | 11             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy Impact, notched, -30°C                | 11             | kJ/m <sup>2</sup> | ISO 179/2C   |
| <b>THERMAL <sup>(1)</sup></b>                |                |                   |              |

| PROPERTIES                                   | TYPICAL VALUES       | UNITS                   | TEST METHODS |
|--|----------------------|-------------------------|--------------|
| HDT, 0.45 MPa, 6.4 mm, unannealed            | 260                  | °C                      | ASTM D648    |
| HDT, 1.82 MPa, 6.4 mm, unannealed            | 247                  | °C                      | ASTM D648    |
| CTE, -40°C to 40°C, flow                     | 0.000016 – 0.0000196 | 1/°C                    | ASTM E831    |
| CTE, -40°C to 40°C, xflow                    | 0.00009 – 0.0000937  | 1/°C                    | ASTM E831    |
| Vicat Softening Temp, Rate B/50              | 246                  | °C                      | ISO 306      |
| Vicat Softening Temp, Rate B/120             | 246                  | °C                      | ISO 306      |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm       | 258                  | °C                      | ISO 75/Bf    |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm        | 244                  | °C                      | ISO 75/Af    |
| <b>PHYSICAL <sup>(1)</sup></b>               |                      |                         |              |
| Specific Gravity                             | 1.45                 | -                       | ASTM D792    |
| Water Absorption, (23°C/Saturated)           | 0.3                  | %                       | ASTM D570    |
| Mold Shrinkage, flow, 3.2 mm <sup>(2)</sup>  | 0.24 – 0.27          | %                       | SABIC method |
| Mold Shrinkage, xflow, 3.2 mm <sup>(2)</sup> | 0.6 – 0.63           | %                       | SABIC method |
| Density                                      | 1.45                 | g/cm <sup>3</sup>       | ISO 1183     |
| Moisture Absorption (23°C / 50% RH)          | 0.1                  | %                       | ISO 62       |
| Melt Volume Rate, MVR at 220°C/5.0 kg        | 10                   | cm <sup>3</sup> /10 min | ISO 1133     |
| <b>INJECTION MOLDING <sup>(3)</sup></b>      |                      |                         |              |
| Drying Temperature                           | 95 – 105             | °C                      |              |
| Drying Time                                  | 3 – 4                | Hrs                     |              |
| Drying Time (Cumulative)                     | 8                    | Hrs                     |              |
| Maximum Moisture Content                     | 0.07                 | %                       |              |
| Minimum Moisture Content                     | 0.02                 | %                       |              |
| Melt Temperature                             | 295 – 315            | °C                      |              |
| Nozzle Temperature                           | 295 – 315            | °C                      |              |
| Front - Zone 3 Temperature                   | 290 – 315            | °C                      |              |
| Middle - Zone 2 Temperature                  | 280 – 315            | °C                      |              |
| Rear - Zone 1 Temperature                    | 275 – 315            | °C                      |              |
| Mold Temperature                             | 75 – 120             | °C                      |              |
| Back Pressure                                | 0.3 – 1.4            | MPa                     |              |
| Screw Speed                                  | 20 – 100             | rpm                     |              |
| Shot to Cylinder Size                        | 30 – 50              | %                       |              |
| Vent Depth                                   | 0.013 – 0.038        | mm                      |              |

(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) 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.

(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.

## ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.



## DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.