

## EMS-Grivory Grivory® GV-5H EF nat PA\*-GF50

Category : Polymer , Thermoplastic , Nylon

### Material Notes:

Product description: Grivory GV-5H EF natural is a 50% glass-fiber reinforced engineering thermoplastic material based on a combination of semi-crystalline Polyamide with partially aromatic copolyamide. Grivory GV-5H EF natural is used for injection molding technical parts with good surface quality and short cycle times, exhibiting exceptional characteristics even after moisture absorption: high stiffness and strengthdimensional stability, low warpagegood chemical resistancegood surface finish Grivory GV is the economical alternative to die-cast alloys.Information provided by EMS Grivory

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_EMS-Grivory-Grivory-GV-5H-EF-nat-PA-GF50.php](http://www.lookpolymers.com/polymer_EMS-Grivory-Grivory-GV-5H-EF-nat-PA-GF50.php)

| Physical Properties               | Metric       | English                   | Comments        |
|-----------------------------------|--------------|---------------------------|-----------------|
| Density                           | 1.56 g/cc    | 0.0564 lb/in <sup>3</sup> | ISO 1183        |
| Water Absorption                  | 4.0 %        | 4.0 %                     | ISO 62          |
| Moisture Absorption               | 1.40 %       | 1.40 %                    | ISO 62          |
| Linear Mold Shrinkage, Flow       | 0.0010 cm/cm | 0.0010 in/in              | ISO 294-4, 2577 |
| Linear Mold Shrinkage, Transverse | 0.0040 cm/cm | 0.0040 in/in              | ISO 294-4, 2577 |

| Mechanical Properties     | Metric                 | English                    | Comments                  |
|---------------------------|------------------------|----------------------------|---------------------------|
| Ball Indentation Hardness | 255 MPa                | 37000 psi                  | conditioned; ISO 2039-1   |
|                           | 280 MPa                | 40600 psi                  | dry; ISO 2039-1           |
| Tensile Strength at Break | 220 MPa                | 31900 psi                  | conditioned; ISO 527-1/-2 |
|                           | 250 MPa                | 36300 psi                  | dry; ISO 527-1/-2         |
| Elongation at Break       | 2.5 %                  | 2.5 %                      | dry; ISO 527-1/-2         |
|                           | 2.5 %                  | 2.5 %                      | conditioned; ISO 527-1/-2 |
| Tensile Modulus           | 17.0 GPa               | 2470 ksi                   | conditioned; ISO 527-1/-2 |
|                           | 18.0 GPa               | 2610 ksi                   | dry; ISO 527-1/-2         |
| Charpy Impact Unnotched   | 9.00 J/cm <sup>2</sup> | 42.8 ft-lb/in <sup>2</sup> | dry; ISO 179/1eU          |
|                           | 9.00 J/cm <sup>2</sup> | 42.8 ft-lb/in <sup>2</sup> | conditioned; ISO 179/1eU  |
|                           | 8.00 J/cm <sup>2</sup> | 38.1 ft-lb/in <sup>2</sup> | dry; ISO 179/1eU          |
|                           | @Temperature 30.0 °C   | @Temperature 86.0 °F       |                           |
|                           | 8.00 J/cm <sup>2</sup> | 38.1 ft-lb/in <sup>2</sup> |                           |

| Mechanical Properties  | Metric<br>@ Temperature 30.0 °C                | English<br>@ Temperature 86.0 °F                   | Comments<br>conditioned; ISO 179/1eU |
|------------------------|--|--|--------------------------------------|
| Charpy Impact, Notched | 1.50 J/cm <sup>2</sup>                         | 7.14 ft-lb/in <sup>2</sup>                         | dry; ISO 179/1eA                     |
|                        | 1.50 J/cm <sup>2</sup>                         | 7.14 ft-lb/in <sup>2</sup>                         | conditioned; ISO 179/1eA             |
|                        | 1.30 J/cm <sup>2</sup><br>@Temperature 30.0 °C | 6.19 ft-lb/in <sup>2</sup><br>@Temperature 86.0 °F | dry; ISO 179/1eU                     |
|                        | 1.30 J/cm <sup>2</sup><br>@Temperature 30.0 °C | 6.19 ft-lb/in <sup>2</sup><br>@Temperature 86.0 °F | conditioned; ISO 179/1eU             |

| Thermal Properties                          | Metric       | English        | Comments                 |
|---|--------------|----------------|--------------------------|
| CTE, linear, Parallel to Flow               | 15.0 µm/m-°C | 8.33 µin/in-°F | ISO 11359-1/-2           |
| CTE, linear, Transverse to Flow             | 90.0 µm/m-°C | 50.0 µin/in-°F | ISO 11359-1/-2           |
| Melting Point                               | 260 °C       | 500 °F         | 10°C/min; ISO 11357-1/-3 |
| Maximum Service Temperature, Air            | 100 - 120 °C | 212 - 248 °F   | long term; EMS           |
|   | 220 °C       | 428 °F         | short term; EMS          |
| Deflection Temperature at 1.8 MPa (264 psi) | 235 °C       | 455 °F         | ISO 75-1/-2              |
| Deflection Temperature at 8.0 MPa           | 165 °C       | 329 °F         | ISO 75-1/-2              |
| Flammability, UL94                          | HB           | HB             | IEC 60695-11-10          |

| Electrical Properties      | Metric          | English         | Comments                 |
|----------------------------|-----------------|-----------------|--------------------------|
| Volume Resistivity         | 1.00e+14 ohm-cm | 1.00e+14 ohm-cm | dry; IEC 60093           |
|                            | 1.00e+14 ohm-cm | 1.00e+14 ohm-cm | conditioned; IEC 60093   |
| Surface Resistance         | 1.00e+13 ohm    | 1.00e+13 ohm    | IEC 60093                |
| Dielectric Strength        | 33.0 kV/mm      | 838 kV/in       | dry; IEC 60243-1         |
|                            | 33.0 kV/mm      | 838 kV/in       | conditioned; IEC 60243-1 |
| Comparative Tracking Index | 600 V           | 600 V           | conditioned; IEC 60112   |

| Descriptive Properties | Value                       | Comments |
|------------------------|-----------------------------|----------|
| Automotive             | Air intake sytems           |          |
|                        | Compressed air systems      |          |
|                        | Cooling and climate control |          |

| Descriptive Properties    | Value<br><i>Exterior</i>                 | Comments |
|---------------------------|--|----------|
|                           | Fuel systems                             |          |
| Electricals & Electronics | Connectors                               |          |
|                           | Electrical appliances                    |          |
|                           | Electrical equipment                     |          |
|                           | Energy distribution                      |          |
|                           | Lighting                                 |          |
|                           | Mobile phones and other portable devices |          |
| Form                      | Granules                                 |          |
| Processing                | Injection Molding                        |          |
| Product Attributes        | Barrier Properties                       |          |
|                           | Co Polyamide                             |          |
|                           | High viscosity                           |          |
|                           | Long Fiber Reinforced                    |          |
|                           | Masterbatch                              |          |
|                           | Nucleated                                |          |
|                           | Transparent Polyamide                    |          |

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