

# Zytel® 70K20HSL BK284

NYLON RESIN

DuPont Performance Polymers

Message:

20% Kevlar® Fiber Reinforced, Heat Stabilized, Polyamide 66

| General Information                        |   |             |                   |             |
|--|---|-------------|-------------------|-------------|
| Filler / Reinforcement                     | Kevlar Fiber, 20% filler by weight  |             |                   |             |
| Additive                                   | heat stabilizer<br>Lubricant<br>demoulding  |             |                   |             |
| Features                                   | Thermal Stability   |             |                   |             |
| RoHS Compliance                            | Contact manufacturer  |             |                   |             |
| Forms                                      | Particle  |             |                   |             |
| Processing Method                          | Injection molding   |             |                   |             |
| Multi-Point Data                           | Isothermal Stress vs. Strain (ISO 11403-1)<br>Secant Modulus vs. Strain (ISO 11403-1) |             |                   |             |
| Part Marking Code (ISO 11469)              | >PA66-RF20  |             |                   |             |
| Resin ID (ISO 1043)                        | PA66-RF20   |             |                   |             |
| Physical                                   | Dry   | Conditioned | Unit              | Test Method |
| Density                                    | 1.19  | --          | g/cm <sup>3</sup> | ISO 1183    |
| Molding Shrinkage                          |   |             |                   | ISO 294-4   |
| Transverse flow                            | 1.4   | --          | %                 | ISO 294-4   |
| Flow                                       | 0.90  | --          | %                 | ISO 294-4   |
| Water Absorption                           |   |             |                   | ISO 62      |
| Saturated, 23°C, 2.00mm                    | 6.8   | --          | %                 | ISO 62      |
| Balance, 23°C, 2.00mm,<br>50% RH           | 2.7   | --          | %                 | ISO 62      |
| Mechanical                                 | Dry   | Conditioned | Unit              | Test Method |
| Tensile Modulus                            | 5300  | 3500        | MPa               | ISO 527-2   |
| Tensile Stress (Break)                     | 110   | 85.0        | MPa               | ISO 527-2   |
| Tensile Strain (Break)                     | 5.0   | 7.2         | %                 | ISO 527-2   |
| Impact                                     | Dry   | Conditioned | Unit              | Test Method |
| Charpy Notched Impact<br>Strength (23°C)   | 6.0   | 9.0         | kJ/m <sup>2</sup> | ISO 179/1eA |
| Charpy Unnotched Impact<br>Strength (23°C) | 50  | 65          | kJ/m <sup>2</sup> | ISO 179/1eU |
| Thermal                                    | Dry   | Conditioned | Unit              | Test Method |

|   |                    |                    |             |                    |
|---|--------------------|--------------------|-------------|--------------------|
| Heat Deflection Temperature               |                    |                    |             |                    |
| 0.45 MPa, not annealed                    | 255                | --                 | °C          | ISO 75-2/B         |
| 1.8 MPa, not annealed                     | 222                | --                 | °C          | ISO 75-2/A         |
| Glass Transition Temperature <sup>1</sup> |                    |                    |             |                    |
|   | 80.0               | --                 | °C          | ISO 11357-2        |
| Vicat Softening Temperature               |                    |                    |             |                    |
|   | 240                | --                 | °C          | ISO 306/B50        |
| Melting Temperature <sup>2</sup>          |                    |                    |             |                    |
|   | 263                | --                 | °C          | ISO 11357-3        |
| Linear thermal expansion coefficient      |                    |                    |             |                    |
| Flow                                      | 4.7E-5             | --                 | cm/cm/°C    | ISO 11359-2        |
| Lateral                                   | 7.5E-5             | --                 | cm/cm/°C    | ISO 11359-2        |
| <b>Electrical</b>                         | <b>Dry</b>         | <b>Conditioned</b> | <b>Unit</b> | <b>Test Method</b> |
| Surface Resistivity                       | --                 | > 1.0E+15          | ohms        | IEC 60093          |
| Volume Resistivity                        | 1.0E+11            | --                 | ohms·cm     | IEC 60093          |
| Dielectric Strength                       | 23                 | --                 | kV/mm       | IEC 60243-1        |
| Dissipation Factor                        |                    |                    |             |                    |
| 100 Hz                                    | 0.014              | --                 |             | IEC 60250          |
| 1 MHz                                     | 0.014              | --                 |             | IEC 60250          |
| <b>Flammability</b>                       | <b>Dry</b>         | <b>Conditioned</b> | <b>Unit</b> | <b>Test Method</b> |
| Burning Rate <sup>3</sup> (1.00 mm)       | < 100              | --                 | mm/min      | ISO 3795           |
| FMVSS Flammability                        | B                  | --                 |             | FMVSS 302          |
| Melt Temperature, Optimum                 |                    |                    |             |                    |
|   | 295                |                    | °C          |                    |
| Mold Temperature, Optimum                 |                    |                    |             |                    |
|   | 100                |                    | °C          |                    |
| Back Pressure                             | As low as possible |                    |             |                    |
| Drying Recommended                        | yes                |                    |             |                    |
| Hold Pressure Time                        | 3.00               |                    | s/mm        |                    |
| Maximum Screw Tangential Speed            |                    |                    |             |                    |
|   | 200                |                    | mm/sec      |                    |
| <b>Fill Analysis</b>                      | <b>Dry</b>         | <b>Conditioned</b> | <b>Unit</b> |                    |
| Ejection Temperature                      | 210                | --                 | °C          |                    |
| <b>Injection</b>                          | <b>Dry</b>         | <b>Unit</b>        |             |                    |
| Drying Temperature                        | 80                 |                    | °C          |                    |
| Drying Time - Desiccant Dryer             |                    |                    |             |                    |
|   | 2.0 - 4.0          |                    | hr          |                    |
| Suggested Max Moisture                    | 0.20               |                    | %           |                    |
| Processing (Melt) Temp                    | 285 - 305          |                    | °C          |                    |
| Mold Temperature                          | 70 - 120           |                    | °C          |                    |
| Holding Pressure                          | 50.0 - 100         |                    | MPa         |                    |
| <b>NOTE</b>                               |                    |                    |             |                    |
| 1.  | 10°C/min           |                    |             |                    |
| 2.  | 10°C/min           |                    |             |                    |

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