

# Durethan® BKV 15 000000

Polyamide 6

LANXESS GmbH

## Message:

PA 6-Copolymer, 15 % glass fibers, injection molding

| General Information                                             |       |                                                       |                   |             |
|-----------------------------------------------------------------|-------|-------------------------------------------------------|-------------------|-------------|
| UL YellowCard                                                   |       | E245249-473580                                        |                   |             |
| Filler / Reinforcement                                          |       | Glass fiber reinforced material, 15% filler by weight |                   |             |
| Agency Ratings                                                  |       | EC 1907/2006 (REACH)                                  |                   |             |
| Processing Method                                               |       | Injection molding                                     |                   |             |
| Physical                                                        | Dry   | Conditioned                                           | Unit              | Test Method |
| Specific Gravity                                                |       |                                                       |                   |             |
| --                                                              | 1.23  | --                                                    | g/cm <sup>3</sup> | ASTM D792   |
| 23°C                                                            | 1.23  | --                                                    | g/cm <sup>3</sup> | ISO 1183    |
| Apparent Density                                                | 0.70  | --                                                    | g/cm <sup>3</sup> | ISO 60      |
| Molding Shrinkage                                               |       |                                                       |                   | ISO 2577    |
| Vertical flow direction:<br>280°C, 3.00mm <sup>1</sup>          | 0.88  | --                                                    | %                 | ISO 2577    |
| Vertical flow direction:<br>120°C, 4 hours, 3.00mm <sup>2</sup> | 0.21  | --                                                    | %                 | ISO 2577    |
| Flow direction: 280°C,<br>3.00mm <sup>3</sup>                   | 0.29  | --                                                    | %                 | ISO 2577    |
| Flow direction: 120°C, 4<br>hours, 3.00mm <sup>4</sup>          | 0.080 | --                                                    | %                 | ISO 2577    |
| Water Absorption                                                |       |                                                       |                   | ISO 62      |
| Saturated, 23°C                                                 | 8.5   | --                                                    | %                 | ISO 62      |
| Equilibrium, 23°C, 50%<br>RH                                    | 2.6   | --                                                    | %                 | ISO 62      |
| Hardness                                                        | Dry   | Conditioned                                           | Unit              | Test Method |
| Ball Indentation Hardness                                       | 170   | 80.0                                                  | MPa               | ISO 2039-1  |
| Mechanical                                                      | Dry   | Conditioned                                           | Unit              | Test Method |
| Tensile Modulus                                                 |       |                                                       |                   |             |
| 23°C <sup>5</sup>                                               | 6200  | 3100                                                  | MPa               | ASTM D638   |
| 23°C                                                            | 6000  | 3000                                                  | MPa               | ISO 527-2/1 |
| Tensile Strength                                                |       |                                                       |                   |             |
| Fracture, 23°C                                                  | 130   | 70.3                                                  | MPa               | ASTM D638   |
| Fracture, 23°C                                                  | 125   | 75.0                                                  | MPa               | ISO 527-2/5 |
| Tensile Elongation                                              |       |                                                       |                   |             |
| Fracture, 23°C                                                  | 3.0   | 5.0                                                   | %                 | ASTM D638   |
| Fracture, 23°C                                                  | 3.0   | 12                                                    | %                 | ISO 527-2/5 |
| Flexural Modulus                                                |       |                                                       |                   |             |

|                                                          |                           |             |                   |             |
|----------------------------------------------------------|---------------------------|-------------|-------------------|-------------|
| 23°C                                                     | 5400                      | 2900        | MPa               | ASTM D790   |
| 23°C <sup>6</sup>                                        | 5200                      | 3100        | MPa               | ISO 178/A   |
| Flexural Strength                                        |                           |             |                   |             |
| 23°C                                                     | 200                       | 120         | MPa               | ASTM D790   |
| 3.5% strain, 23°C                                        | 180                       | 90.0        | MPa               | ISO 178/A   |
| 23°C <sup>7</sup>                                        | 200                       | 120         | MPa               | ISO 178/A   |
| Flexural Strain at Flexural Strength <sup>8</sup> (23°C) | 5.0                       | 8.0         | %                 | ISO 178/A   |
| Burning Behavior <sup>9</sup> (> 1.00 mm)                |                           | --          |                   | ISO 3795    |
| ISO Shortname                                            | PA 6/66, GR, 14-060, GF15 | --          |                   | ISO 1874    |
| Residual Moisture Content                                | 0.030 - 0.12              |             | %                 | Karl Fisher |
| Impact                                                   | Dry                       | Conditioned | Unit              | Test Method |
| Charpy Notched Impact Strength                           |                           |             |                   | ISO 179/1eA |
| -40°C                                                    | < 10                      | < 10        | kJ/m <sup>2</sup> | ISO 179/1eA |
| -30°C                                                    | < 10                      | < 10        | kJ/m <sup>2</sup> | ISO 179/1eA |
| 23°C                                                     | < 10                      | 10          | kJ/m <sup>2</sup> | ISO 179/1eA |
| Charpy Unnotched Impact Strength                         |                           |             |                   | ISO 179/1eU |
| -30°C                                                    | 35                        | 35          | kJ/m <sup>2</sup> | ISO 179/1eU |
| 23°C                                                     | 45                        | 70          | kJ/m <sup>2</sup> | ISO 179/1eU |
| Notched Izod Impact                                      |                           |             |                   |             |
| -40°C, 3.18 mm                                           | 53                        | 53          | J/m               | ASTM D256   |
| 23°C, 3.18 mm                                            | 64                        | 250         | J/m               | ASTM D256   |
| -40°C                                                    | < 10                      | < 10        | kJ/m <sup>2</sup> | ISO 180/1A  |
| -30°C                                                    | < 10                      | < 10        | kJ/m <sup>2</sup> | ISO 180/1A  |
| Unnotched Izod Impact Strength                           |                           |             |                   | ISO 180/1U  |
| -30°C                                                    | 30                        | 30          | kJ/m <sup>2</sup> | ISO 180/1U  |
| 23°C                                                     | 30                        | 80          | kJ/m <sup>2</sup> | ISO 180/1U  |
| Multi-Axial Instrumented Impact Energy                   |                           |             |                   | ISO 6603-2  |
| -30°C                                                    | 3.00                      | --          | J                 | ISO 6603-2  |
| 23°C                                                     | 4.00                      | --          | J                 | ISO 6603-2  |
| Multi-Axial Instrumented Impact Peak Force               |                           |             |                   | ISO 6603-2  |
| -30°C                                                    | 585                       | --          | N                 | ISO 6603-2  |
| 23°C                                                     | 644                       | --          | N                 | ISO 6603-2  |
| Thermal                                                  | Dry                       | Conditioned | Unit              | Test Method |
| Deflection Temperature Under Load                        |                           |             |                   |             |
| 0.45 MPa, unannealed, 39.9mm                             | 215                       | --          | °C                | ASTM D648   |
| 0.45 MPa, not annealed                                   | 210                       | --          | °C                | ISO 75-2/B  |

|                                        |                   |             |             |                |
|----------------------------------------|-------------------|-------------|-------------|----------------|
| 1.8 MPa, not annealed                  | 190               | --          | °C          | ISO 75-2/A     |
| 1.8 MPa, annealing,<br>3.99mm          | 200               | --          | °C          | ASTM D648      |
| 8.0 MPa, not annealed                  | 60.0              | --          | °C          | ISO 75-2/C     |
| Vicat Softening Temperature            |                   |             |             |                |
| --                                     | 200               | --          | °C          | ISO 306/B50    |
| --                                     | > 200             | --          | °C          | ISO 306/B120   |
| Melting Temperature <sup>10</sup>      | 213               | --          | °C          | ISO 11357-3    |
| Linear thermal expansion coefficient   |                   |             |             | ISO 11359-2    |
| Flow: 23 to 55°C                       | 3.0E-5            | --          | cm/cm/°C    | ISO 11359-2    |
| Lateral: 23 to 55°C                    | 8.0E-5            | --          | cm/cm/°C    | ISO 11359-2    |
| Electrical                             | Dry               | Conditioned | Unit        | Test Method    |
| Surface Resistivity                    | 1.0E+13 - 1.0E+14 | 1.0E+12     | ohms        | IEC 60093      |
| Volume Resistivity (23°C)              | 1.0E+15           | 1.0E+12     | ohms·cm     | IEC 60093      |
| Dielectric Strength                    |                   |             |             | IEC 60243-1    |
| 23°C, 1.00 mm                          | 40                | 35          | kV/mm       | IEC 60243-1    |
| 23°C, 3.00 mm                          | 35                | 31          | kV/mm       | IEC 60243-1    |
| Dielectric Constant                    |                   |             |             |                |
| 23°C, 50 Hz <sup>11</sup>              | 4.00              | 15.0        |             | IEC 60250      |
| 23°C, 1 MHz <sup>12</sup>              | 4.00              | 5.00        |             | IEC 60250      |
| 23°C, 100 Hz                           | 4.00              | 10.0        |             | IEC 60250      |
| Dissipation Factor                     |                   |             |             | IEC 60250      |
| 23°C, 50 Hz                            | 5.0E-3            | 0.50        |             | IEC 60250      |
| 23°C, 100 Hz                           | 5.0E-3            | 0.20        |             | IEC 60250      |
|                                        | 0.015             | 0.16        |             |                |
| 23°C, 1 MHz                            | 0.015             | 0.12        |             | IEC 60250      |
| Comparative Tracking Index             |                   |             |             |                |
| Solution a                             | 600               | --          | V           | IEC 60112      |
| Solution B                             | 425               | --          | V           | IEC 60112      |
| --                                     | --                | 425         | V           | ASTM D3638     |
| Flammability                           | Dry               | Conditioned | Unit        | Test Method    |
| Flame Rating                           |                   |             |             | UL 94          |
| 1.60 mm                                | HB                | --          |             | UL 94          |
| 3.20 mm                                | HB                | --          |             | UL 94          |
| Glow Wire Flammability Index (2.00 mm) | 650               | --          | °C          | IEC 60695-2-12 |
| Oxygen Index <sup>13</sup>             | 22                | --          | %           | ISO 4589-2     |
| Injection                              | Dry               | Unit        | Test Method |                |
| Drying Temperature - Dry Air Dryer     | 80.0              |             | °C          |                |

|                             |            |    |
|-----------------------------|------------|----|
| Drying Time - Dry Air Dryer | 2.0 - 6.0  | hr |
| Processing (Melt) Temp      | 260 - 290  | °C |
| Mold Temperature            | 80.0 - 100 | °C |

#### NOTE

|     |                                  |
|-----|----------------------------------|
| 1.  | 150x105x3mm, 80°C MT,<br>500 bar |
| 2.  | 150x105x3mm                      |
| 3.  | 150x105x3mm, 80°C MT,<br>500 bar |
| 4.  | 150x105x3mm                      |
| 5.  | 1.0 mm/min                       |
| 6.  | 2.0 mm/min                       |
| 7.  | 2.0 mm/min                       |
| 8.  | 2 mm/min                         |
| 9.  | US-FMVSS302                      |
| 10. | 10°C/min                         |
| 11. | Tinfoil Electrodes               |
| 12. | Tinfoil Electrodes               |
| 13. | Procedure A                      |

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