

# Durethan® AKV 35 H2.0 901510

Polyamide 66

LANXESS GmbH

## Message:

PA 66, 35 % glass fibers, injection molding, heat-aging stabilized

| General Information                                             |       |                                                       |                   |             |
|-----------------------------------------------------------------|-------|-------------------------------------------------------|-------------------|-------------|
| UL YellowCard                                                   |       | E245249-473557                                        |                   |             |
| Filler / Reinforcement                                          |       | Glass fiber reinforced material, 35% filler by weight |                   |             |
| Additive                                                        |       | heat stabilizer                                       |                   |             |
| Features                                                        |       | Good heat aging resistance                            |                   |             |
| Agency Ratings                                                  |       | EC 1907/2006 (REACH)                                  |                   |             |
| Processing Method                                               |       | Injection molding                                     |                   |             |
| Physical                                                        | Dry   | Conditioned                                           | Unit              | Test Method |
| Density (23°C)                                                  | 1.41  | --                                                    | g/cm <sup>3</sup> | ISO 1183    |
| Apparent Density                                                | 0.70  | --                                                    | g/cm <sup>3</sup> | ISO 60      |
| Molding Shrinkage                                               |       |                                                       |                   | ISO 294-4   |
| Vertical flow direction:<br>300°C, 2.00mm <sup>1</sup>          | 0.91  | --                                                    | %                 | ISO 294-4   |
| Vertical flow direction:<br>120°C, 2 hours, 2.00mm <sup>2</sup> | 0.070 | --                                                    | %                 | ISO 294-4   |
| Flow direction: 300°C,<br>2.00mm <sup>3</sup>                   | 0.37  | --                                                    | %                 | ISO 294-4   |
| Flow direction: 120°C, 2<br>hours, 2.00mm <sup>4</sup>          | 0.050 | --                                                    | %                 | ISO 294-4   |
| Water Absorption                                                |       |                                                       |                   | ISO 62      |
| Saturated, 23°C                                                 | 5.0   | --                                                    | %                 | ISO 62      |
| Equilibrium, 23°C, 50%<br>RH                                    | 1.7   | --                                                    | %                 | ISO 62      |
| Hardness                                                        | Dry   | Conditioned                                           | Unit              | Test Method |
| Ball Indentation Hardness                                       | 220   | 140                                                   | MPa               | ISO 2039-1  |
| Mechanical                                                      | Dry   | Conditioned                                           | Unit              | Test Method |
| Tensile Modulus                                                 |       |                                                       |                   |             |
| 23°C                                                            | 10300 | 6600                                                  | MPa               | ASTM D638   |
| 23°C                                                            | 11200 | 7500                                                  | MPa               | ISO 527-2/1 |
| Tensile Stress (Break, 23°C)                                    | 200   | 125                                                   | MPa               | ISO 527-2/5 |
| Tensile Strain (Break, 23°C)                                    | 3.1   | 6.4                                                   | %                 | ISO 527-2/5 |
| Tensile Creep Modulus                                           |       |                                                       |                   | ISO 899-1   |
| 1 hr                                                            | --    | 7000                                                  | MPa               | ISO 899-1   |
| 1000 hr                                                         | --    | 5800                                                  | MPa               | ISO 899-1   |
| Flexural Modulus                                                |       |                                                       |                   |             |
| 23°C                                                            | 9300  | 6400                                                  | MPa               | ASTM D790   |

|                                                          |                          |             |                   |              |
|----------------------------------------------------------|--------------------------|-------------|-------------------|--------------|
| 23°C <sup>5</sup>                                        | 10500                    | 6500        | MPa               | ISO 178/A    |
| Flexural Strength                                        |                          |             |                   |              |
| 5.0% strain, 23°C                                        | 280                      | 160         | MPa               | ASTM D790    |
| 23°C                                                     | 300                      | 200         | MPa               | ASTM D790    |
| 3.5% strain <sup>6</sup>                                 | 280                      | 165         | MPa               | ISO 178/A    |
| 23°C <sup>7</sup>                                        | 300                      | 200         | MPa               | ISO 178      |
| Flexural Strain at Flexural Strength <sup>8</sup> (23°C) | 4.1                      | 6.2         | %                 |              |
| Burning Behavior <sup>9</sup> (> 1.00 mm)                | 29                       | --          |                   | ISO 3795     |
| ISO Shortname                                            | PA 66, GHR, 14-110, GF35 | --          |                   | ISO 1874     |
| Residual Moisture Content                                | 0.030 - 0.12             |             | %                 | Karl Fisher  |
| Films                                                    | Dry                      | Conditioned | Unit              | Test Method  |
| Film Puncture Energy                                     |                          |             |                   | ISO 6603-2   |
| -- <sup>10</sup>                                         | 2.60                     | --          | J                 | ISO 6603-2   |
| -- <sup>11</sup>                                         | 3.20                     | 5.90        | J                 | ISO 6603-2   |
| Film Puncture Force                                      |                          |             |                   | ISO 6603-2   |
| -- <sup>12</sup>                                         | 830                      | --          | N                 | ISO 6603-2   |
| -- <sup>13</sup>                                         | 900                      | 1260        | N                 | ISO 6603-2   |
| Impact                                                   | Dry                      | Conditioned | Unit              | Test Method  |
| Charpy Notched Impact Strength                           |                          |             |                   | ISO 179/1eA  |
| -30°C                                                    | 10                       | 10          | kJ/m <sup>2</sup> | ISO 179/1eA  |
| 23°C                                                     | 12                       | 17          | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy Unnotched Impact Strength                         |                          |             |                   | ISO 179/1eU  |
| -30°C                                                    | 70                       | 75          | kJ/m <sup>2</sup> | ISO 179/1eU  |
| 23°C                                                     | 85                       | 90          | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Notched Izod Impact                                      |                          |             |                   | ISO 180/1A   |
| -30°C                                                    | 10                       | 10          | kJ/m <sup>2</sup> | ISO 180/1A   |
| 23°C                                                     | 12                       | 15          | kJ/m <sup>2</sup> | ISO 180/1A   |
| Unnotched Izod Impact Strength                           |                          |             |                   | ISO 180/1U   |
| -30°C                                                    | 65                       | --          | kJ/m <sup>2</sup> | ISO 180/1U   |
| 23°C                                                     | 75                       | --          | kJ/m <sup>2</sup> | ISO 180/1U   |
| Thermal                                                  | Dry                      | Conditioned | Unit              | Test Method  |
| Heat Deflection Temperature                              |                          |             |                   |              |
| 0.45 MPa, not annealed                                   | 250                      | --          | °C                | ISO 75-2/B   |
| 1.8 MPa, not annealed                                    | 250                      | --          | °C                | ISO 75-2/A   |
| Vicat Softening Temperature                              |                          |             |                   |              |
| --                                                       | 230                      | --          | °C                | ISO 306/B50  |
| --                                                       | 250                      | --          | °C                | ISO 306/B120 |

|                                         |                             |             |             |                |
|-----------------------------------------|-----------------------------|-------------|-------------|----------------|
| Ball Pressure Test (254°C)              | Pass                        | --          |             | IEC 60695-10-2 |
| Melting Temperature <sup>14</sup>       | 263                         | --          | °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                     | 9.0E-5                      | --          | cm/cm/°C    | ISO 11359-2    |
| Electrical                              | Dry                         | Conditioned | Unit        | Test Method    |
| Surface Resistivity                     | 1.0E+15                     | 1.0E+13     | ohms        | IEC 60093      |
| Volume Resistivity (23°C)               | 1.0E+15                     | 1.0E+12     | ohms·cm     | IEC 60093      |
| Dielectric Strength (23°C, 1.00 mm)     | 35                          | 30          | kV/mm       | IEC 60243-1    |
| Relative Permittivity                   |                             |             |             | IEC 60250      |
| 23°C, 100 Hz                            | 4.00                        | 10.0        |             | IEC 60250      |
| 23°C, 1 MHz                             | 4.00                        | 4.00        |             | IEC 60250      |
| Dissipation Factor                      |                             |             |             | IEC 60250      |
| 23°C, 100 Hz                            | 0.011                       | 0.21        |             | IEC 60250      |
| 23°C, 1 MHz                             | 0.015                       | 0.065       |             | IEC 60250      |
| Comparative Tracking Index (Solution A) | 425                         | --          | V           | IEC 60112      |
| 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)  | 600                         | --          | °C          | IEC 60695-2-12 |
| Oxygen Index <sup>15</sup>              | 25                          | --          | %           | 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                  | 280 - 300                   |             | °C          |                |
| Mold Temperature                        | 80.0 - 120                  |             | °C          |                |
| NOTE                                    |                             |             |             |                |
| 1.                                      | 60x60x2; MT 80°C; 600 Bar   |             |             |                |
| 2.                                      | 60x60x2                     |             |             |                |
| 3.                                      | 60x60x2; MT 80°C; 600 Bar   |             |             |                |
| 4.                                      | 60x60x2                     |             |             |                |
| 5.                                      | 2.0 mm/min                  |             |             |                |
| 6.                                      | 2.0 mm/min                  |             |             |                |
| 7.                                      | 2.0 mm/min                  |             |             |                |
| 8.                                      | Pull Rate: 2 mm/min; 50% RH |             |             |                |
| 9.                                      | US-FMVSS302                 |             |             |                |
| 10.                                     | -30°C                       |             |             |                |

|     |             |
|-----|-------------|
| 11. | 23°C        |
| 12. | -30°C       |
| 13. | 23°C        |
| 14. | 10°C/min    |
| 15. | Procedure A |

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