

# Durethan® B 30 S FN40 000000

Polyamide 6

LANXESS GmbH

## Message:

PA 6, non-reinforced, injection molding, halogen free flame retardant

| General Information                                             |      |                      |                   |              |
|-----------------------------------------------------------------|------|----------------------|-------------------|--------------|
| UL YellowCard                                                   |      | E245249-473615       |                   |              |
| Features                                                        |      | Halogen-free         |                   |              |
|                                                                 |      | Flame retardancy     |                   |              |
| Agency Ratings                                                  |      | EC 1907/2006 (REACH) |                   |              |
| Processing Method                                               |      | Injection molding    |                   |              |
| Physical                                                        | Dry  | Conditioned          | Unit              | Test Method  |
| Density (23°C)                                                  | 1.14 | --                   | g/cm <sup>3</sup> | ISO 1183     |
| Apparent Density                                                | 0.70 | --                   | g/cm <sup>3</sup> | ISO 60       |
| Molding Shrinkage                                               |      |                      |                   |              |
| Vertical flow direction:<br>260°C, 2.00mm <sup>1</sup>          | 0.90 | --                   | %                 | ISO 294-4    |
| Vertical flow direction:<br>120°C, 2 hours, 2.00mm <sup>2</sup> | 0.30 | --                   | %                 | ISO 294-4    |
| Flow direction: 260°C,<br>2.00mm <sup>3</sup>                   | 0.90 | --                   | %                 | ISO 294-4    |
| Flow direction: 120°C, 2<br>hours, 2.00mm <sup>4</sup>          | 0.30 | --                   | %                 | ISO 294-4    |
| Vertical flow direction:<br>260°C, 3.00mm <sup>5</sup>          | 0.90 | --                   | %                 | ISO 2577     |
| Vertical flow direction:<br>120°C, 2 hours, 3.00mm <sup>6</sup> | 0.20 | --                   | %                 | ISO 294-4    |
| Flow direction: 260°C,<br>3.00mm <sup>7</sup>                   | 0.90 | --                   | %                 | ISO 2577     |
| Flow direction: 120°C, 2<br>hours, 3.00mm <sup>8</sup>          | 0.20 | --                   | %                 | ISO 2577     |
| Water Absorption                                                |      |                      |                   | ISO 62       |
| Saturated, 23°C                                                 | 10   | --                   | %                 | ISO 62       |
| Equilibrium, 23°C, 50%<br>RH                                    | 3.0  | --                   | %                 | ISO 62       |
| Hardness                                                        | Dry  | Conditioned          | Unit              | Test Method  |
| Ball Indentation Hardness                                       | 135  | --                   | MPa               | ISO 2039-1   |
| Mechanical                                                      | Dry  | Conditioned          | Unit              | Test Method  |
| Tensile Modulus (23°C)                                          | 3400 | 1100                 | MPa               | ISO 527-2/1  |
| Tensile Stress                                                  |      |                      |                   |              |
| Yield, 23°C                                                     | 90.0 | 45.0                 | MPa               | ISO 527-2/50 |

|                                                           |                                        |             |                   |                |
|-----------------------------------------------------------|----------------------------------------|-------------|-------------------|----------------|
| Fracture, 23°C                                            | 60.0                                   | 65.0        | MPa               | ISO 527-2/5    |
| Tensile Strain                                            |                                        |             |                   |                |
| Yield, 23°C                                               | 4.0                                    | 23          | %                 | ISO 527-2/50   |
| Fracture, 23°C                                            | 16                                     | 290         | %                 | ISO 527-2/5    |
| Nominal Tensile Strain at Break (23°C)                    | 9.6                                    | 270         | %                 | ISO 527-2/50   |
| Flexural Modulus <sup>9</sup> (23°C)                      | 3000                                   | 900         | MPa               | ISO 178/A      |
| Flexural Stress <sup>10</sup>                             |                                        |             |                   |                |
| 3.5% strain                                               | 100                                    | 26.0        | MPa               | ISO 178/A      |
| 23°C                                                      | 120                                    | 35.0        | MPa               | ISO 178        |
| Flexural Strain at Flexural Strength <sup>11</sup> (23°C) | 5.9                                    | 8.1         | %                 |                |
| ISO Shortname                                             | PA 6, GFR, 14-030; ISO 1043-PA-FR (30) |             |                   | ISO 1874       |
| Residual Moisture Content                                 | 0.030 - 0.070                          |             | %                 | Karl Fisher    |
| Impact                                                    | Dry                                    | Conditioned | Unit              | Test Method    |
| Charpy Unnotched Impact Strength (23°C)                   | No Break                               | No Break    |                   | ISO 179/1eU    |
| Notched Izod Impact                                       |                                        |             |                   | ISO 180/1A     |
| -30°C                                                     | < 10                                   | --          | kJ/m <sup>2</sup> | ISO 180/1A     |
| 23°C                                                      | < 10                                   | --          | kJ/m <sup>2</sup> | ISO 180/1A     |
| Unnotched Izod Impact Strength (23°C)                     | No Break                               | No Break    |                   | ISO 180/1U     |
| Thermal                                                   | Dry                                    | Conditioned | Unit              | Test Method    |
| Heat Deflection Temperature                               |                                        |             |                   |                |
| 0.45 MPa, not annealed                                    | 166                                    | --          | °C                | ISO 75-2/B     |
| 1.8 MPa, not annealed                                     | 66.0                                   | --          | °C                | ISO 75-2/A     |
| Melting Temperature <sup>12</sup>                         | 222                                    | --          | °C                | ISO 11357-3    |
| Linear thermal expansion coefficient                      |                                        |             |                   | ISO 11359-2    |
| Flow: 23 to 55°C                                          | 9.0E-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    |
| Comparative Tracking Index <sup>13</sup> (Solution A)     | 600                                    | --          | V                 | IEC 60112      |
| Flammability                                              | Dry                                    | Conditioned | Unit              | Test Method    |
| Flame Rating (0.750 mm)                                   | V-2                                    | --          |                   | UL 94          |
| Glow Wire Flammability Index                              |                                        |             |                   | IEC 60695-2-12 |
| 0.800 mm                                                  | 960                                    | --          | °C                | IEC 60695-2-12 |
| 1.50 mm                                                   | 960                                    | --          | °C                | IEC 60695-2-12 |
| 3.00 mm                                                   | 960                                    | --          | °C                | IEC 60695-2-12 |
| Glow Wire Ignition Temperature                            |                                        |             |                   | IEC 60695-2-13 |
| 0.800 mm                                                  | 875                                    | --          | °C                | IEC 60695-2-13 |

|                                    |                             |      |             |                |
|------------------------------------|-----------------------------|------|-------------|----------------|
| 1.50 mm                            | 850                         | --   | °C          | IEC 60695-2-13 |
| 3.00 mm                            | 750                         | --   | °C          | IEC 60695-2-13 |
| Oxygen Index <sup>14</sup>         | 28                          | --   | %           | 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             | 250 - 270                   |      | °C          |                |
| Mold Temperature                   | 80.0 - 100                  |      | °C          |                |
| NOTE                               |                             |      |             |                |
| 1.                                 | 60x60x2; MT 80°C; 600 Bar   |      |             |                |
| 2.                                 | 60x60x2                     |      |             |                |
| 3.                                 | 60x60x2; MT 80°C; 600 Bar   |      |             |                |
| 4.                                 | 60x60x2                     |      |             |                |
| 5.                                 | 150x150x3; MT 80°C; 500 Bar |      |             |                |
| 6.                                 | 150x150x3                   |      |             |                |
| 7.                                 | 150x150x3; MT 80°C; 500 Bar |      |             |                |
| 8.                                 | 150x150x3                   |      |             |                |
| 9.                                 | 2.0 mm/min                  |      |             |                |
| 10.                                | 2.0 mm/min                  |      |             |                |
| 11.                                | Pull Rate: 2 mm/min; 50% RH |      |             |                |
| 12.                                | 10°C/min                    |      |             |                |
| 13.                                | Erosion depth: 1.60mm       |      |             |                |
| 14.                                | Procedure A                 |      |             |                |

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