

# Datasheet

## Durethan BKV140 000000

PA 6-Copolymer, 40% glass fibers, injection molding, improved impact strength

ISO Shortname: ISO 16396-PA 6/66-I,GF40,GR,S14-110

| Property  | Test Condition                           | Unit              | Standard       | guide value <sup>1</sup> |       |
|---|--|-------------------|----------------|--------------------------|-------|
|   |  |                   |                | d.a.m.                   | cond. |
| <b>Rheological properties</b>                   |  |                   |                |                          |       |
| Molding shrinkage, parallel                     | 150x105x3; 290 °C / MT<br>80 °C; 400 bar | %                 | acc. ISO 294-4 | 0.16                     |       |
| Molding shrinkage, transverse                   | 150x105x3; 290 °C / MT<br>80 °C; 400 bar | %                 | acc. ISO 294-4 | 0.71                     |       |
| Post- shrinkage, parallel                       | 150x105x3; 120 °C; 4 h                   | %                 | acc. ISO 294-4 | 0.03                     |       |
| Post- shrinkage, transverse                     | 150x105x3; 120 °C; 4 h                   | %                 | acc. ISO 294-4 | 0.1                      |       |
| C Molding shrinkage, parallel                   | 60x60x2; 290 °C / MT 80<br>°C; 600 bar   | %                 | ISO 294-4      | 0.1                      |       |
| C Molding shrinkage, transverse                 | 60x60x2; 290 °C / MT 80<br>°C; 600 bar   | %                 | ISO 294-4      | 0.6                      |       |
| Post- shrinkage, parallel                       | 60x60x2; 120 °C; 4 h                     | %                 | ISO 294-4      | 0.1                      |       |
| Post- shrinkage, transverse                     | 60x60x2; 120 °C; 4 h                     | %                 | ISO 294-4      | 0.1                      |       |
| <b>Mechanical properties (23 °C/50 % r. h.)</b> |  |                   |                |                          |       |
| C Tensile modulus                               | 1 mm/min                                 | MPa               | ISO 527-1,-2   | 11500                    | 6700  |
| C Tensile Stress at break                       | 5 mm/min                                 | MPa               | ISO 527-1,-2   | 180                      | 120   |
| C Tensile Strain at break                       | 5 mm/min                                 | %                 | ISO 527-1,-2   | 3.0                      | 6.0   |
| C Tensile creep modulus                         | 1 h                                      | MPa               | ISO 899-1      |                          | 6100  |
| C Tensile creep modulus                         | 1000 h                                   | MPa               | ISO 899-1      |                          | 4900  |
| C Charpy impact strength                        | 23 °C                                    | kJ/m <sup>2</sup> | ISO 179-1eU    | 100                      | 110   |
| C Charpy impact strength                        | -30 °C                                   | kJ/m <sup>2</sup> | ISO 179-1eU    | 95                       | 95    |
| C Charpy notched impact strength                | 23 °C                                    | kJ/m <sup>2</sup> | ISO 179-1eA    | 25                       | 30    |
| C Charpy notched impact strength                | -30 °C                                   | kJ/m <sup>2</sup> | ISO 179-1eA    | 10                       | 10    |
| Izod impact strength                            | 23 °C                                    | kJ/m <sup>2</sup> | ISO 180-1U     | 80                       | 90    |
| Izod impact strength                            | -30 °C                                   | kJ/m <sup>2</sup> | ISO 180-1U     | 75                       | 75    |
| Izod notched impact strength                    | 23 °C                                    | kJ/m <sup>2</sup> | ISO 180-1A     | 20                       | 30    |
| Izod notched impact strength                    | -30 °C                                   | kJ/m <sup>2</sup> | ISO 180-1A     | 16                       | 16    |
| Flexural modulus                                | 2 mm/min                                 | MPa               | ISO 178-A      | 10400                    | 6200  |
| Flexural strength                               | 2 mm/min                                 | MPa               | ISO 178-A      | 295                      | 175   |
| Flexural strain at flexural strength            | 2 mm/min                                 | %                 | ISO 178-A      | 4.0                      | 6.0   |
| Flexural stress at 3.5 % strain                 | 2 mm/min                                 | MPa               | ISO 178-A      | 280                      | 145   |
| C Puncture maximum force                        | 23 °C                                    | N                 | ISO 6603-2     | 1175                     | 1450  |
| C Puncture maximum force                        | -30 °C                                   | N                 | ISO 6603-2     | 975                      | 1000  |
| C Puncture energy                               | 23 °C                                    | J                 | ISO 6603-2     | 3.8                      | 5.2   |
| C Puncture energy                               | -30 °C                                   | J                 | ISO 6603-2     | 2.3                      | 2.3   |
| Ball indentation hardness                       |  | N/mm <sup>2</sup> | ISO 2039-1     | 200                      |       |

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|   |                |                     |                      | d.a.m.                   | cond. |
| <b>Thermal properties</b>                             |                |                     |                      |                          |       |
| C Melting temperature                                 | 10 °C/min      | °C                  | ISO 11357-1,-3       | 213                      |       |
| C Temperature of deflection under load                | 1.80 MPa       | °C                  | ISO 75-1,-2          | 200                      |       |
| C Temperature of deflection under load                | 0.45 MPa       | °C                  | ISO 75-1,-2          | 210                      |       |
| Vicat softening temperature                           | 50 N; 120 °C/h | °C                  | ISO 306              | > 200                    |       |
| C Coefficient of linear thermal expansion, parallel   | 23 to 55 °C    | 10 <sup>-4</sup> /K | ISO 11359-1,-2       | 0.2                      |       |
| C Coefficient of linear thermal expansion, transverse | 23 to 55 °C    | 10 <sup>-4</sup> /K | ISO 11359-1,-2       | 0.9                      |       |
| C Burning behavior UL 94                              | 1.5 mm         | Class               | UL 94                | HB                       |       |
| C Oxygen index  | Method A       | %                   | ISO 4589-2           | 22                       |       |
| Glow wire test (GWFI)                                 | 2.0 mm         | °C                  | IEC 60695-2-12       | 650                      |       |
| Burning behavior US-FMVSS302                          |                |                     | ISO 3795             | passed                   |       |
| C Vicat softening temperature                         | 50 N; 50 °C/h  | °C                  | ISO 306              | > 200                    |       |
| <b>Electrical properties (23 °C/50 % r. h.)</b>       |                |                     |                      |                          |       |
| C Relative permittivity                               | 100 Hz         | -                   | IEC 60250            | 4.0                      | 10    |
| C Relative permittivity                               | 1 MHz          | -                   | IEC 60250            | 4.0                      | 5.0   |
| C Dissipation factor                                  | 100 Hz         | 10 <sup>-4</sup>    | IEC 60250            | 70                       |       |
| C Dissipation factor                                  | 1 MHz          | 10 <sup>-4</sup>    | IEC 60250            | 200                      |       |
| C Volume resistivity                                  |                | Ohm·m               | IEC 62631-3          | 1E13                     | 1E09  |
| C Surface resistivity                                 |                | Ohm                 | IEC 62631-3          | 1E14                     | 1E10  |
| C Electric strength                                   | 1 mm           | kV/mm               | IEC 60243-1          | 40                       | 35    |
| C Comparative tracking index CTI                      | Solution A     | Rating              | IEC 60112            | 575                      |       |
| Comparative tracking index CTI M                      | Solution B     | Rating              | IEC 60112            | 450 M                    |       |
| <b>Other properties (23 °C)</b>                       |                |                     |                      |                          |       |
| C Water absorption (Saturation value)                 | Water at 23 °C | %                   | ISO 62               | 6                        |       |
| C Water absorption (Equilibrium value)                | 23 °C; 50 % RH | %                   | ISO 62               | 1.6                      |       |
| C Density   |                | kg/m <sup>3</sup>   | ISO 1183             | 1460                     |       |
| Bulk density  |                | kg/m <sup>3</sup>   | ISO 60               | 700                      |       |
| <b>Processing conditions for test specimens</b>       |                |                     |                      |                          |       |
| C Injection molding-Melt temperature                  |                | °C                  | ISO 294              | 290                      |       |
| C Injection molding-Mold temperature                  |                | °C                  | ISO 294              | 80                       |       |
| <b>Processing recommendations</b>                     |                |                     |                      |                          |       |
| Drying temperature dry air dryer                      |                | °C                  | -                    | 80                       |       |
| Drying time dry air dryer                             |                | h                   | -                    | 2-6                      |       |
| Residual moisture content                             |                | %                   | Acc. to Karl Fischer | 0.03-0.12                |       |
| Melt temperature (Tmin - Tmax)                        |                | °C                  | -                    | 260-290                  |       |
| Mold temperature                                      |                | °C                  | -                    | 80-100                   |       |

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|----------|----------------|------|----------|--|
|----------|----------------|------|----------|--|

#### Notes

**1** Typical properties: these are not to be construed as specifications

**C** These property characteristics are taken from the CAMPUS plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350.

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Test values

Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mould/die, the processing conditions and the coloring.

Processing note

Under the recommended processing conditions small quantities of decomposition product may be given off during processing. To preclude any risk to the health and well-being of the machine operatives, tolerance limits for the work environment must be ensured by the provision of efficient exhaust ventilation and fresh air at the workplace in accordance with the Safety Data Sheet. In order to prevent the partial decomposition of the polymer and the generation of volatile decomposition products, the prescribed processing temperatures should not be substantially exceeded. Since excessively high temperatures are generally the result of operator error or defects in the heating system, special care and controls are essential in these areas.

Conditioning

Conditioning in accordance with ISO 1110 (70 °C; 62 % r.h.)

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