

## Technical Data Sheet

# PE 1000 natural

Ultra-high molecular weight polyethylene (PE-UHMW / PE 1000)

### Typical Properties

- Very low coefficient of friction
- Very high wear and abrasion resistance
- High impact strength, even at low temperatures
- Good sliding properties, permanent self-lubrication
- Good chemical resistance
- Low moisture absorption

### Typical Industries

- Conveyor technology & automation
- Machinery and plant engineering
- Mining & bulk material handling
- Agriculture
- Water and wastewater engineering
- Packaging industry

|                                            | Test Method        | Unit                 | Value                |
|--------------------------------------------|--------------------|----------------------|----------------------|
| <b>General Properties</b>                  |                    |                      |                      |
| Density                                    | ISO 1183           | g / cm <sup>3</sup>  | 0.93                 |
| Molecular weight                           | –                  | g / mol              | ~5 · 10 <sup>6</sup> |
| Flammability                               | –                  |                      | normally flammable   |
| <b>Mechanical Properties</b>               |                    |                      |                      |
| Tensile strength                           | ISO 527; 50 mm/min | N / mm <sup>2</sup>  | ≥ 17                 |
| Elongation at tensile strength             | ISO 527; 50 mm/min | %                    | ≥ 8                  |
| Tear strength                              | ISO 527; 50 mm/min | N / mm <sup>2</sup>  | ≥ 40                 |
| Tear elongation                            | ISO 527; 50 mm/min | %                    | > 50                 |
| Tensile E-modulus                          | ISO 527            | N / mm <sup>2</sup>  | ≥ 700                |
| Ball indentation hardness (30 s)           | DIN ISO 2039/1     | N / mm <sup>2</sup>  | 38                   |
| Shore hardness D (3 s)                     | DIN 53505          | scale D              | 63                   |
| Shore hardness D (15 s)                    | DIN 53505          | scale D              | 61                   |
| Impact strength                            | DIN 53453          | mJ / mm <sup>2</sup> | no break             |
| Notched impact strength                    | ISO 179            | mJ / mm <sup>2</sup> | no break             |
| Notched impact strength (sharp notch, 15°) | ISO 179            | mJ / mm <sup>2</sup> | ≥ 200                |
| Wear (sand-slurry test)                    | Internal method    | Index                | 100                  |
| <b>Thermal Properties</b>                  |                    |                      |                      |

|                                             | Test Method   | Unit                 | Value       |
|---------------------------------------------|---------------|----------------------|-------------|
| Vicat softening temperature                 | DIN ISO 306/B | °C                   | 79          |
| Crystalline melting range                   | DTA           | °C                   | 130 ... 135 |
| Linear expansion coefficient (23 ... 80 °C) | DIN 53752     | 10 <sup>-4</sup> / K | 2           |
| Thermal conductivity (23 °C)                | DIN 52612     | W / (m * K)          | 0.41        |

### Electrical Properties

|                     |            |         |                    |
|---------------------|------------|---------|--------------------|
| Volume resistivity  | VDE 0303/3 | Ω * cm  | > 10 <sup>14</sup> |
| Surface resistance  | VDE 0303/3 | Ω       | > 10 <sup>11</sup> |
| Dielectric strength | VDE 0303/2 | kV / mm | 45                 |
| Arc resistance      | VDE 0303/5 |         | L4                 |

### Additional Information

|                             |   |                                    |
|-----------------------------|---|------------------------------------|
| Paintability / printability | – | only after pretreatment            |
| Bondability                 | – | only after pretreatment            |
| UV resistance               | – | limited, protect from UV radiation |
| Chemical resistance         | – | high resistance                    |

The values stated are mean values secured through continuous statistical testing. They serve solely as information about our products and are intended to assist with material selection. They do not constitute a legally binding guarantee of specific properties or suitability for particular applications. Since properties also depend on the dimensions of the semi-finished products and the manufacturing process, the actual property values of a specific product may deviate somewhat from the figures given.