

## Technical Data Sheet

# PE-UHMW EL black

Ultra-high molecular weight polyethylene, electrically conductive (PE-UHMW / PE 1000 EL)

### Typical Properties

- Electrically conductive, surface resistance  $\leq 10^6 \Omega$  (explosion protection)
- Food-safe according to FDA 21 CFR § 177.1520
- High impact strength, no break in drop-weight testing
- Very low water absorption

### Typical Industries

- Tank and apparatus construction (explosion protection)
- Electrical and bulk materials industry
- Machinery and plant engineering (slide rails)
- Food industry

|                                              | Test Method      | Unit                     | Value                   |
|----------------------------------------------|------------------|--------------------------|-------------------------|
| <b>General Properties</b>                    |                  |                          |                         |
| Density                                      | DIN EN ISO 1183  | g / cm <sup>3</sup>      | 0.95                    |
| Water absorption (24 h)                      | DIN EN ISO 62899 | %                        | < 0.02                  |
| Fire behaviour*                              | DIN 4102         |                          | B2, normal flammability |
| <b>Mechanical Properties</b>                 |                  |                          |                         |
| Tensile modulus of elasticity                | DIN EN ISO 527   | MPa                      | 800                     |
| Yield stress                                 | DIN EN ISO 527   | MPa                      | 20                      |
| Elongation at yield                          | DIN EN ISO 527   | %                        | 10                      |
| Impact strength                              | DIN EN ISO 179   |                          | no break                |
| Notched impact strength                      | DIN EN ISO 179   | kJ / m <sup>2</sup>      | –                       |
| Ball indentation hardness                    | DIN ISO 2039-1   | MPa                      | 31                      |
| Shore hardness D (15 s)                      | DIN EN ISO 868   | scale D                  | 64                      |
| <b>Thermal Properties</b>                    |                  |                          |                         |
| Vicat softening temperature (Vicat B)        | DIN EN ISO 306   | °C                       | 88                      |
| Mean coefficient of linear thermal expansion | ISO 11359-2      | K <sup>-1</sup>          | $1.8 \cdot 10^{-4}$     |
| Service temperature range                    | –                | °C                       | –260 ... +80            |
| <b>Electrical Properties</b>                 |                  |                          |                         |
| Surface resistance                           | DIN IEC 60093    | $\Omega$                 | $\leq 10^6$             |
| Bulk resistance                              | DIN IEC 60093    | $\Omega \cdot \text{cm}$ | $\leq 10^6$             |

\*The fire behaviour rating is based on our own assessment without a test certificate and does not replace fire testing under the relevant building regulations. The electrical values describe the conductive treatment of this type and were measured on black, dry material; other conditions may show deviations. The values stated are guideline values that serve as information about our products and as an aid to material selection. We do not thereby provide a legally binding guarantee of specific properties or of suitability for particular applications. As the 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 stated.

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