

## Technical Data Sheet PTFE K15

# PTFE + 15 % carbon/graphite (K15)

PTFE + 15 % carbon/graphite (K15) – carbon/graphite-filled PTFE, wear-resistant, self-lubricating, -200 ... +260 °C

### Typical Properties

- Improved compressive and wear resistance vs. virgin PTFE
- Reduced creep (cold flow) under sustained load
- Very wide temperature range (-200 ... +260 °C)
- Near-universal chemical resistance, including hydrofluoric acid
- Very low coefficient of friction, self-lubricating
- Non-flammable (UL 94 V-0)
- Weakly conductive to insulating
- Not meltable/weldable – machining only

### Typical Industries

- Sealing technology
- Chemical process and plant engineering
- Plain bearings, sliding and guide elements
- Pump and valve technology
- Piston rings and compressor engineering
- Semiconductor and electronics manufacturing

|                                             | Test Method | Unit                 | Value                                   |
|---------------------------------------------|-------------|----------------------|-----------------------------------------|
| <b>Physical Properties</b>                  |             |                      |                                         |
| Density                                     | ISO 1183    | g / cm <sup>3</sup>  | 2.15                                    |
| Water absorption                            | ISO 62      | %                    | < 0.05                                  |
| Color                                       |             |                      | black                                   |
| <b>Mechanical Properties</b>                |             |                      |                                         |
| Tensile strength                            | ISO 527     | MPa                  | ≥ 14                                    |
| Elongation at break                         | ISO 527     | %                    | ≥ 115                                   |
| Hardness                                    | ISO 868     | Shore D              | 58–62                                   |
| Coefficient of friction (vs. steel)         | DIN 53375   |                      | ~ 0.15                                  |
| <b>Thermal Properties</b>                   |             |                      |                                         |
| Service temperature                         |             | °C                   | -200 ... +260                           |
| Coefficient of linear expansion (25–200 °C) | DIN 52612   | 10 <sup>-5</sup> / K | ≈ 10                                    |
| Thermal conductivity                        | DIN 52612   | W / (m * K)          | ≈ 0.45                                  |
| <b>Electrical Properties</b>                |             |                      |                                         |
| Dielectric strength                         | IEC 60243-1 | kV / mm              | ~ 5                                     |
| Volume resistivity                          | IEC 60093   | Ω * cm               | ~ 10 <sup>10</sup> ... 10 <sup>11</sup> |
| <b>Fire Behaviour</b>                       |             |                      |                                         |

|              | Test Method | Unit | Value               |
|--------------|-------------|------|---------------------|
| Flammability | UL 94       |      | V-0 (non-flammable) |

PTFE + 15 % carbon/graphite (K15) is a carbon/graphite-filled PTFE compound for wear- and friction-optimised applications. The values stated are typical properties of a PTFE-K15 compound; they serve as an aid to material selection and do not constitute a legally binding guarantee of specific properties. Values for filled PTFE grades depend on filler, particle size and processing and can vary by manufacturer. The carbon/graphite content improves wear, friction and creep behaviour and makes the material more electrically conductive than virgin PTFE, but reduces elongation and notched impact strength compared with virgin PTFE. PTFE must not be overheated (decomposition from approx. 260 °C, releasing hazardous gases).

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