

PTFE Virgin.

This product is more commonly known by the brand name Teflon® and is renowned for the lowest friction coefficient. It also has exceptional chemical resistance and dielectric properties. Despite excelling with the above properties it has poor mechanical properties, which is why it can be modified with both glass and carbon to improve the dimensional stability.

Physical Properties (indicative values)

| GENERAL PROPERTIES | Test Method | Units | Value |
|--|---------------|--------------------|--------------------|
| Density | ISO 1183 | g/cm ³ | 2.16 |
| Water absorption | | | |
| - at saturation in air of 23°C / 50% R.H. | ISO 62 | mg | 0.1 |
| - at saturation in water 23°C | ISO 62 | mg | 0.02 |
| MECHANICAL PROPERTIES | | | |
| Tensile stress at yield and break | ISO 527 | N/mm ² | 20 |
| Elongation at break | ISO 527 | % | 300 |
| Tensile modulus of elasticity | ISO 527 | N/mm ² | 0.4 |
| Compression test | ISO 173/3C | | |
| - 1% strain after 1,000 hrs | ISO 899 | N/mm ² | 10 |
| Charpy impact strength - Notched | ISO 179-1/1eU | KJ/mm ² | KJ/mm ² |
| Charpy impact strength - Unnotched | ISO 179-1/1eA | KJ/mm ² | no break |
| Ball indentation hardness | ISO 2039 | N/mm ² | 28 |
| Shore hardness D | ISO 2039 | D | 58 |
| Coefficient of friction to steel ⁽¹²⁾ | ISO 8295 | - | .08 - .1 |
| THERMAL PROPERTIES | | | |
| Melting temperature | ISO 3156 | °C | 327 |
| Thermal conductivity at 23°C | ISO 22007.2 | W/9km | 0.26 |
| Deformation temperature ⁽¹⁵⁾ | ISO 75 | °C | 55 |
| Coefficient of linear thermal expansion | | | |
| - average value between 23 and 60°C | ISO 11359 | m(m.K) | 11 |
| Max. allowable service temperature in air | | | |
| - Continuously ⁽¹⁷⁾ | - | °C | 250 |
| - Short periods ⁽¹⁸⁾ | - | °C | 300 |
| - Minimum service temperature ⁽¹⁹⁾ | - | °C | -260 |
| Flammability | | | |
| - Oxygen index | ISO 4589 | % | 95 |
| - according to UL 94 (3/6 thickness) | UL 94 | - | VO |
| ELECTRICAL PROPERTIES | | | |
| Dielctrical constant | ISO 250 | - | 21 |
| Dielectric strength | ISO 243 | KV/mm | 24 |
| Volume resistivity | ISO 93 | Ωcm | 10 ¹⁸ |
| Dissipation factor tan Δ at 1 MHz | ISO 250 | - | 0.0002 |

Legend

- Figures relate to specimen conditioned at 23°C and 50 RH. Figures between brackets relate to dry specimen. Figures for materials marked with * can change according to their moisture content.

- Figures refer to un-coloured samples either injection moulded or machined in the easiest way. Tests made on samples of different sizes give slightly different results.

⁽¹²⁾ Test on ground steel dry specimen load 0.05 N/mm² speed = 0.6 m/s

⁽¹⁵⁾ Deformation at temperature . HDT at 1.8 N/mm²

⁽¹⁷⁾ Operating temperature continuously 500h. From 23°C upwards, the materials' features change in a non-uniform and disproportional way. The quoted limits are indicative and based on a tensile stress of 50% of the value at 23°C.

⁽¹⁸⁾ Operating temperature short period (no load).

⁽¹⁹⁾ The mechanical features decrease with a reduction in temperature and are also influenced by other factors (moisture, etc). The quoted values do not take into consideration impact conditions or heavy loads.

This table, is mainly to be used for comparison purposes. It's a valuable tool to help in the choice of material. The data listed here falls within the normal range of product properties. However, they aren't guaranteed and shouldn't be used to establish material specification limits nor used alone as the basis of design.

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