

Tribological data of mould polymerised PA Grades
Data determined by comparative pin-disc tests according ISO 7148

Test conditions:

| | |
|----------------------------|---|
| Polymer pin: | 6,00 mm diameter |
| Counter part - steel disc: | 100Cr6, 110 mm diameter roughness Rp = 0,30 - 0,60 µm roughness Rp = 0,08 - 0,12 µm |
| Relative sliding velocity: | 0,30m/s, slide track radius 51,50mm |
| Specific test load: | 3,00 MPa |
| "p.v. - value": | 0,90 (relatively high) |
| Ambient temperature: | 21°C (± 3°C) |
| Intermediate medium: | none, unlubricated - technical dry |

| | Mean specific coefficient of wear K_w [10 ⁻⁶ mm ³ / Nm] | Mean specific rate or wear w_l [µm / km] | Coefficient of friction - no lubrication* | | | |
|--|---|--|---|--------------------|-------------------|-------------------|
| | | | minimum dynamic | maximum dynamic | minimum static | maximum static |
| PA 6 G not modified | 3,30 | 10,00 | 0,42 | 0,58 | 0,46 | 0,64 |
| PA 6 G MO MoS ₂ modified | 3,20 | 9,60 | 0,43 | 0,57 | 0,44 | 0,58 |
| PA 6 G M MoS ₂ modified | 2,90 | 8,80 | 0,55 | 0,59 | 0,46 | 0,51 |
| PA 6 G OL lubricant incorporated | 2,90 | 8,60 | 0,47 | 0,53 | 0,45 | 0,58 |
| PA 6 G LU sliding additive incorporated | 2,30 | 6,80 | 0,33 | 0,55 | 0,23 | 0,32 |

*In case of an externally lubricated system coefficient of friction is determined by the lubricant applied.

Please note:

Friction and wear are not only material properties, but system - properties, depending upon many parameters of the overall tribological system. Comparison of materials only on behalf of data for wear rate and coefficient of friction, without knowledge of testing or operating conditions of the system under which the data were determined do not result in correct interpreted properties.

Above stated data were determined under exactly the same conditions to ensure comparable friction and wear properties.

The following applies to Polyamides:

Under the influence of moisture absorption, the mechanical properties change. The material becomes tougher and more resistant to impact, the modulus of elasticity declines. Depending on the environmental atmosphere, the temperature and the period of moisture absorption, only the surface layer is affected by alterations of property to a certain depth. On thick-walled parts the center area remains unaffected. The above stated tribological data determined with specimen in dry condition. Depending upon the tribological system most material may show different properties.

The values indicated result from numerous individual measurements for an approximation of the values and are to our today's knowledge. They serve as information about our products and are presented as a guide to choose from our range of materials.

Tribological data of extruded types
Data determined by comparative pin-disc tests according ISO 7148

Test conditions:

| | |
|----------------------------|---|
| Polymer pin: | 6,00 mm diameter |
| Counter part - steel disc: | 100Cr6, 110 mm diameter roughness Rp = 0,30 - 0,60 μm roughness Rp = 0,08 - 0,12 μm |
| Relative sliding velocity: | 0,30m/s, slide track radius 51,50mm |
| Specific test load: | 3,00 MPa |
| "p.v. - value": | 0,90 (relatively high) |
| Ambient temperature: | 21°C (± 3°C) |
| Intermediate medium: | none, unlubricated - technical dry |

| | Mean specific <u>coefficient of wear K_w</u> [10 ⁻⁶ mm ³ / Nm] | Mean specific <u>rate or wear w</u> [μm / km] | Coefficient of friction - no lubrication* | | | |
|------------------|---|--|---|---------------------------|--------------------------|--------------------------|
| | | | <u>dynamic</u> minimum | <u>dynamic</u> maximum | <u>static</u> minimum | <u>static</u> maximum |
| POM C | 0,23 | 0,69 | 0,42 | 0,53 | 0,17 | 0,46 |
| POM C GLD 350 | 0,46 | 1,39 | 0,24 | 0,29 | 0,23 | 0,24 |
| POM C GLD 160 | 0,89 | 2,66 | 0,28 | 0,31 | 0,15 | 0,19 |
| POM H-AF | 0,60 | 1,79 | 0,26 | 0,27 | 0,18 | 0,22 |
| PA 6 | 4,19 | 12,59 | 0,61 | 0,88 | 0,18 | 0,51 |
| PA 6 GC MO | 3,04 | 9,12 | 0,62 | 0,83 | 0,16 | 0,35 |
| PA 66 | 2,70 | 8,10 | 0,41 | 0,57 | 0,29 | 0,33 |
| PA 66 GLD 240 | 5,73 | 17,21 | 0,31 | 0,50 | 0,19 | 0,27 |
| PET | 2,04 | 6,11 | 0,29 | 0,36 | 0,16 | 0,21 |
| PET GLD 130 | 0,87 | 2,61 | 0,25 | 0,28 | 0,18 | 0,19 |
| PEEK | 1,44 | 4,33 | 0,43 | 0,44 | 0,21 | 0,4 |
| PEEK MOD | 0,62 | 1,85 | 0,38 | 0,39 | 0,19 | 0,27 |
| TECHTRON HPV PPS | 0,99 | 2,98 | 0,24 | 0,31 | 0,17 | 0,24 |

*In case of an externally lubricated system coefficient of friction is determined by the lubricant applied.

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