

PoliTerm MATERIALS PROPERTYES

POLITERM PE 60 – poliamid 6

- **implementation** : For cog, roller gear, clutch elements, eccenters, packing rings, screw thread elements, pillow block bearing, and other element, which contains toughness, and impact tenacity.
- **density** : 1,13 g/cm³
- **modulus of elasticity** : 1.600 N/mm²
- **permanent statically loaded**: up to 12 N/mm²
- **poroperty** : high resistance to toughness and resistance to wear.

POLITREM PE – high molecular polietilen

- **implementation** : For elements exposed toughness at low temperature, and for elements with resistance to wear, sliding friction. For cogs, worm cogs and star type elements...
- **density** : 0,94 g/cm³
- **modulus of elasticity** : 500 N/mm²
- **permanent statically loaded**: up to 3 N/mm²
- **poroperty** : high resistance to wear, abrasive hardness, (coke, road metal...)

POLITERM PP – polipropilen

- **implementation** : Wide implementation at chemistry industry, for elements exposed to low intensity of strain.
- **density** : 0,9 g/cm³
- **modulus of elasticity** : 1.200 N/mm²
- **poroperty** : High acid resistance. Possibility for plastic welding.

| BASIC MATERIAL | BASIC APPLICATION | RESISTANCE TO WEAR | | ULTIMATE STRENGTH P u N/mm ² statically | KINETIC FRICTION dry friction | ABSORPTION OF MOISTURE AT 65% R.U. % | TEMPERATURE OF PRACTICE permanent evanescent C° | ACID RESISTANT + goods 0 conditionally - weakly | PHYSIOLOGICAL CLEARLY | POSSIBLY INJECTION CASTING | LUBRICATION + goods 0 middling - weakly | ANNOTATION | | | | | | | | | | | |
|----------------|--|--------------------|------|--|----------------------------------|---|--|--|-----------------------|----------------------------|--|------------|-----------|----------|---|-----|---|-----|---|----|-----|-----|----------------|
| | | middling | good | | | | | | | | | | very good | ultimate | 0 | 1,5 | 3 | -50 | 0 | 50 | 100 | 150 | 200 |
| POLITERM 60 | cogs roller gears universal joint pins | | ● | 14 | 0,3 | ● | ●●● | - | + | (0) | ● | + | + | + | + | + | + | + | + | + | + | + | high toughness |
| POLITERM PE | acid resistant cogs | | ● | 2 | 0,12 | ● | ●●● | + | + | (0) | ● | + | + | + | + | + | + | + | + | + | + | + | high toughness |
| POLITERM PP | element exposed to acids | ● | | 6 | 0,4 | ● | ●● | + | + | (0) | ● | + | + | + | + | + | + | + | + | + | + | + | |

PoliTerm MATERIALS
MECHANICAL, THERMAL and ELECTRIC PROPERTIES

| PROPERTY | | STANDARD | UNIT OF MEASUREMENT | POLITERM PA 60 | POLITERM PE | POLITERM PP |
|--|---|-----------------------|----------------------|------------------------|---------------------|------------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| MECHANICAL PROPERTY | | | | | | |
| density | - | | g/cm ³ | 1,13 | 0,94 | 0,905 |
| tensile strength | - | DIN 53455 | N/mm ² | 80 | 22 | 32 |
| | + | DIN 53455 | N/mm ² | 40 | 22 | 32 |
| tension at interruption | - | DIN 53455 | % | 110 | Ca 450 | Ca 650 |
| | + | DIN 53455 | % | 300 | Ca 450 | Ca 650 |
| modulus of elasticity (tension) | - | tensile | N/mm ² | 2.700 | - | Ca 1.200 |
| | + | tensile | N/mm ² | 1.600 | - | Ca 1.200 |
| modulus of elasticity (bending stress) | - | bending stress | N/mm ² | 2.400 | 790 | - |
| | + | bending stress | N/mm ² | 1.200 | 790 | - |
| critical bending stress | - | DIN 53452 | N/mm ² | 120 | 27 | 45 |
| | + | DIN 53452 | N/mm ² | 35 | 27 | 45 |
| tenacity | + | DIN 53453 | kJ/m ² | no interruption | - | no interruption |
| dynamic tenacity at t= 20 ⁰ C | + | DIN 53453 | kJ/m ² | Ca 100 | no interruption | 4÷8 |
| dynamic tenacity at t= 0 ⁰ C | + | DIN 53453 | kJ/m ² | - | - | Ca 4 |
| dynamic tenacity at t= -20 ⁰ C | + | DIN 53453 | kJ/m ² | - | - | Ca 2 |
| dynamic tenacity at t= -40 ⁰ C | + | DIN 53453 | kJ/m ² | - | - | - |
| toughness (SHORE D) | - | DIN 53505 | SHORE D | 78 | 64÷67 | 69 |
| | + | DIN 53505 | SHORE D | 65 | 64÷67 | 69 |
| THERMAL PROPERTY | | | | | | |
| melting temperature | | | ⁰ K | Ca 488 | 373 | |
| coefficient of linear expansion | | | mm/ms ⁰ K | 9÷12x10 ⁻¹¹ | 2x10 ⁻¹⁰ | 16x10 ⁻¹¹ |
| specific heat | | | J | 1674 | 1841 | 1925 |
| ELECTRICITY PROPERTY | | | | | | |
| permittivity dielectric constant +10 ⁵ Hz | - | DIN 53483 | | 3,6 | 2,3 | 2,2÷2,4 |
| | + | VDE 0303, TEIL4/10X55 | | 6÷7 | 2,3 | 2,2÷2,4 |
| dielectric factor of loss at +10 ⁵ Hz | - | DIN 53483 | | 0,02÷0,03 | 0,0002 | 0,0006 |
| | + | VDE 0303, TEIL4/10X55 | | 0,01÷0,03 | 0,0002 | 0,0006 |
| break-down voltage | - | DIN 53481 | kV/mm | 50 | 90 | 30÷90 |
| | + | VDE 0303, TEIL2/10X55 | kV/mm | 20 | 90 | 30÷90 |
| specific electrical resistance | - | DIN 53482 | Ohm x cm | 5x10 ¹⁴ | >10 ¹⁸ | - |
| | + | VDE 0303, TEIL3/10X55 | Ohm x cm | 10 ¹² | >10 ¹⁸ | 10 ¹⁶ ÷10 ¹⁸ |
| surface resistance | - | DIN 53482 | Ohm | 10 ¹² | >10 ¹³ | - |
| | + | VDE 0303, TEIL3/10X55 | Ohm | 10 ¹³ | >10 ¹³ | 5x10 ¹³ |
| RESISTANCE ON VAGABOND CURRENT | - | DIN 53480 | | KA 3c | KA 3c | KA 3c |
| | + | VDE 0303, TEIL1/10X55 | | KA 3b | KA 3c | |
| <i>legend: (-) dry material (+) conditioned material</i> | | | | | | |