ENSINGER
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**Material Data Sheet, October 2005**

# TECAMID 6

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|---|---|
| Chemical Designation : | Polyamide 6 |
| DIN−Abbreviation: | PA 6 |
| Colours, fillers: | opaque |

## Main features

- very tough
- resistant to many oils, greases, diesels and petrol
- electrically insulating
- easily welded
- wear resistant
- good sliding properties
- strong
- easily machined
- easily bonded

## Preferred Fields

- mechanical engineering
- transport and conveyor technology
- packaging and paper processing machinery
- drinks dispensing machinery
- electrical engineering
- agricultural machinery
- automotive engineering
- textile machinery
- printing machinery
- domestic appliance
- building machinery

## Applications

gear wheels, friction bearings, friction strips, conveyor screws, bushes, spindle, nuts, cam discs, rope pulleys, castors, impact plates,damping plates

## Properties

| Mechanical | dry / moist | | standard |
|---|---|---|---|
| Tensile strength at yield | 85 / 60 | MPa | DIN EN ISO 527 |
| Elongation at yield | 4 | % | DIN EN ISO 527 |
| Tensile strength at break | | MPa | |
| Elongation at break | 70 / 200 | % | DIN 53 455 |
| Modulus of elasticity in tension | 3000 / 1800 | MPa | DIN EN ISO 527 |
| Modulus of elasticity after flexural test | | MPa | |
| Hardness | 160 / 70 | | DIN 53 456 (Kugeldruckhärte) |
| Impact strength 23º C (Charpy) | n.b. | KJ/m² | DIN EN ISO 179 (Charpy) |
| Creep rupture strength<br>after 1000 h with static load | 45 | MPa | |
| Time yield limit<br>for 1% elongation after 1000 h | 4,5 | MPa | |
| Co−efficient of friction<br>p = 0,05 N/mm²v=0,6 m/s<br>on steel, hardened and ground | 0,38−0,45 | | |
| Wear<br>p = 0,05 N/mm²v=0,6 m/s<br>on steel, hardened and ground | 0,23 | µm/km | |

| Thermal | dry / moist | | standard |
|---|---|---|---|
| Crystalline melting point | | °C | |
| Glass transition temperature | 60 / 5 | °C | DIN 53 765 |
| Heat distortion temperature<br>HDT, Method A | 75 | °C | ISO−R 75 Verfahren A (DIN 53 461) |
| Heat distortion temperature<br>HDT, Method B | 190 | °C | ISO−R 75 Verfahren B (DIN 53 461) |
| Max. service temperature | | | |
| short term | 160 | °C | |
| long term | 100 | °C | |
| Thermal conductivity (23º C) | 0,23 | W/(K·m) | |
| Specific heat (23º C) | 1,7 | J/g.K | |
| Coefficient of thermal expansion<br>(23−55ºC) | 8 | $10^{-5}$1/K | DIN 53 752 |

## Properties

| Electrical | dry / moist | | standard |
|---|---|---|---|
| Dielectric constant ($10^6$ Hz) | 3,7−7 | | DIN 53 483, IEC−250 |
| Dielectric loss factor ($10^6$ Hz) | 0,031−0,3 | | DIN 53 483, IEC−250 |
| Specific volume resistance | 10^13 | Ω*cm | DIN IEC 60093 |
| Surface resistance | 10^12 | Ω | DIN IEC 60093 |
| Dielectric strength | 20−50 | kV/mm | DIN 53 481, IEC−243, VDE 0303 Teil 2 |
| Resistance to tracking | CTI 600 | | DIN 53 480, VDE 0303 Teil 1 |

| Miscellaneous | dry / moist | | standard |
|---|---|---|---|
| Density | 1,13 | g/cm$^3$ | DIN 53 479 |
| Moisture absorption (23°C/50RH) | 3 | % | DIN EN ISO 62 |
| Water absorption to equilibrium | 9,5 | % | DIN EN ISO 62 |
| Flammability acc. to UL standard 94 | HB | | |

(1) Testing of semi−finished products

The above information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of chemical resistance, of certain properties and the suitability of our products and their applications. Our products are not destined for use in medical and dental implants. Existing commercial patents must be observed. Unless otherwise stated, these values represent averages taken from injection moulding samples, dry as moulded. We reserve the right to make technical alterations.