TECAMID 46

Chemical Designation: Polyamide 46
DIN–Abbreviation: PA 46
Colours, fillers: red

Main features
- high thermal and mechanical capacity
- creep resistant
- resistant to many oils, greases, diesels and petrol
- good sliding properties
- electrically insulating
- very rigid
- wear resistant
- easily machined

Preferred Fields
- mechanical engineering
- transport and conveyor technology
- precision engineering
- packaging and paper processing machinery
- automotive engineering
- electrical engineering
- textile machinery

Applications
Gears, sliding rails, frictions bearings, seals, pistons, friction rings, structural parts

Properties

<table>
<thead>
<tr>
<th>Mechanical Properties</th>
<th>dry / moist</th>
<th>standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength at yield</td>
<td>100 / 65 MPa</td>
<td>DIN EN ISO 527</td>
</tr>
<tr>
<td>Elongation at yield</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Tensile strength at break</td>
<td>MPa</td>
<td></td>
</tr>
</tbody>
</table>
Elongation at break 40 / 280 %  
Modulus of elasticity in tension 3300 / 1200 MPa  
Modulus of elasticity after flexural test MPa  
Hardness 90  
Impact strength 23°C (Charpy) n.b. KJ/m²  
Creep rupture strength after 1000 h with static load MPa  
Time yield limit for 1% elongation after 1000 h MPa  
Co-efficient of friction 0.20-0.45 
Wear p = 0.05 N/mm² v = 0.6 m/s µm/km on steel, hardened and ground  
Thermal dry / moist standard  
Crystalline melting point 295 °C  
Glass transition temperature 75 °C  
Heat distortion temperature HDT, Method A 160 °C  
Heat distortion temperature HDT, Method B °C  
Max. service temperature  
short term 220 °C  
long term 130 °C  
Thermal conductivity (23°C) 0.3 W/(K·m)  
Specific heat (23°C) 2.1 J/g.K  
Coefficient of thermal expansion (23-55°C) 8 10⁻⁵ 1/K  

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### Properties

**Electrical**

<table>
<thead>
<tr>
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<th>dry / moist</th>
<th>standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric constant (10^6 Hz)</td>
<td>9,4 −1,1 / 9,4</td>
<td>DIN 53 483, IEC−250</td>
</tr>
<tr>
<td>Dielectric loss factor (10^6 Hz)</td>
<td>0,21−0,35</td>
<td>DIN 53 483, IEC−250</td>
</tr>
<tr>
<td>Specific volume resistance</td>
<td>10^15 Ωcm</td>
<td>DIN IEC 60093</td>
</tr>
<tr>
<td>Surface resistance</td>
<td>10^16 Ω</td>
<td>DIN IEC 60093</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>&gt; 20 kV/mm</td>
<td>DIN 53 481, IEC−243, VDE 0303 Teil 2</td>
</tr>
<tr>
<td>Resistance to tracking</td>
<td>KC&gt;425</td>
<td>DIN 53 480, VDE 0303 Teil 1</td>
</tr>
</tbody>
</table>

**Miscellaneous**

<table>
<thead>
<tr>
<th>Property</th>
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<th>standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1,18 g/cm^3</td>
<td>DIN 53 479</td>
</tr>
<tr>
<td>Moisture absorption (23^°C/50RH)</td>
<td>3,7 %</td>
<td>DIN EN ISO 62</td>
</tr>
<tr>
<td>Water absorption to equilibrium</td>
<td>14 %</td>
<td>DIN EN ISO 62</td>
</tr>
<tr>
<td>Flammability acc. to UL standard 94</td>
<td>V2</td>
<td></td>
</tr>
</tbody>
</table>

(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.