

# Stanyl®

**Chem. Designation:** Polyamid

**DIN-Abbreviation:** PA 4.6

Properties	Value	Unit	ISO/IEC
Density	1,18 / -		
Water absorption absolutely 1)	90 / 180	mg	62
Water absorption, relative 1)	1,3 / 2,6	%	62
- at saturation in air of 23°C, 50% RF	2,8 / -	%	
- at saturation in water of 23°C	9,5 / -	%	

Thermal Properties	Value	Unit	ISO/IEC
Crystalline melting point	295 / -	°C	-
Thermal conductivity (23° C)	0,3 / -	W/(k·m)	-
Coefficient of thermal expansion: - average value between 23 and 60°C	80 · 10 <sup>-6</sup> / -	m/(m·K)	-
Coefficient of thermal expansion: - average value between 23 and 100°C	90 · 10 <sup>-6</sup> / -	m/(m·K)	-
Temperature of deflection under load - Method a: 1,8 MPa	160 / -	°C	75
Max. service temperature in air: -short periods 2	200 / -	°C	-
Max. service temperature in air: -continously: for min. 5000/20.000 h	155 / 135	°C	-
Minimum service temperature	-40 / -	°C	-
Flammability acc. to ASTM („Oxygen index“)	24 / -	%	4589
Flammability acc. to UL standard 94 (thickness 3mm/6mm)	HB / HB		-

Mechanical Properties (at 23°C)	Value	Unit	ISO/IEC
Tensile strength at yield/Tensile strength at break	dry 100 / -	MPa	527-1/-2
Tensile strength at yield/Tensile strength at break	moist 55 / -	MPa	527-1/-2
Elongation at break	dry 25 / -	%	527-1/-2
Elongation at break	moist >100 / -	%	527-1/-2
Modulus of elasticity in tension	dry 3300 / -	MPa	527-1/-2
Modulus of elasticity in tension	moist 1300 / -	MPa	527-1/-2
Compression Test - 1% nominal strain	dry 25 / -	MPa	604
Tensile creep 3)	dry 22 / -	MPa	899
Tensile creep 3)	moist 7,5 / -	MPa	899
impact-strength - Charpy unnotched	dry o.B. / -	kJ/m <sup>2</sup>	179/1eU
impact-strength Charpy notched	dry 8 / -	kJ/m <sup>2</sup>	179/1eA
impact-strength Izod	dry 8 / 80	kJ/m <sup>2</sup> ; J/m	180/2A
impact-strength Izod	moist 25 / 250	kJ/m <sup>2</sup> ; J/m	180/A
Ball indentation hardness H 358 / 30 or H 961 / 30	dry 165 / -	N/mm <sup>2</sup>	2039-1
Hardness, Rockwell	dry M92 / -		2039-2
Coefficient of Friction 4)	dry 0,2 / 0,45	μ	

Electrical Properties	Value	Unit	ISO/IEC
Dielectric strength	dry 25 / -	kV/mm	60243
Dielectric strength	moist 15 / -	kV/mm	60243
Volume resistivity	dry 10 <sup>14</sup> / -	Ohm·cm	60093
Volume resistivity	moist 10 <sup>12</sup> / -	Ohm·cm	60093
Surface resistivity	dry 10 <sup>13</sup> / -	Ohm	60093
Surface resistivity	moist 10 <sup>12</sup> / -	Ohm	60093
Dielectric constant at 100 Hz	dry 3,8 / -		60250
Dielectric constant at 100 Hz	moist 7,4 / -		60250
Dielectric constant at 1 MHz	dry 3,4 / -		60250
Dielectric constant at 1 MHz	moist 3,8 / -		60250
Dielectric dissipation factor tan δ at 100 H	dry 0,009 / -		60250

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Dielectric dissipation factor tan δ at 100 Hz	moist	0,13 / -		60250
Dielectric dissipation factor tan δ at 1 MHz	dry	0,019 / -		60250
Dielectric dissipation factor tan δ at 1 MHz	moist	0,06 / -		60250
Comparative tracking index (CTI)	dry	CTI 400 / -	CTI	60112
Comparative tracking index (CTI)	moist	CTI 400 / -		60112

- |       |  |  |
|-------|--|--|
| dry   | = values referring to dry materials                | 1) after 24/96h immersion in water of 23°C   |
| moist | = values referring to material in equilibrium with | 2) only for short time exposure (a few hours) in applications where no or only a very              |
|       | = the standard atmosphere 23°C/50% RH              | low load is applied to the material  |
| o.B.  | = no break   | 3) stress to produce 1% strain in 1000 h (s 1/1000)  |
|       |  | 4) p = 0,05 N/mm <sup>2</sup> , v= 0,6 m/s surface roughness C35 steel mating surface Ra 0,7 - 0,9 |

This table is a valuable help in the choice of material. The data listed here fall within the normal range of product properties. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. It has to be noted that fibre reinforced material shows an anisotropic behaviour (properties differ when measured parallel and perpendicular to be extrusion direction).