










Material Data Sheet












PA6 natural

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

Main features

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

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

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

Properties

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Mechanical	dry / moist		standard
Tensile strength at yield	85 / 60	MPa	DIN EN ISO 527
Elongation at yield	4	%	DIN EN ISO 527
Elongation at break	70 / 200	%	DIN 53 455
Modulus of elasticity in tension	3000 / 1800	MPa	DIN EN ISO 527
Hardness	160 / 70		DIN 53 456 (Kugeldruckhärte)
Impact strength 23° C (Charpy)	n.b.	KJ/m ²	DIN EN ISO 179 (Charpy)
Creep rupture strength after 1000 h with static load	45	MPa	
Time yield limit	4,5	MPa	

for 1% elongation after 1000 h

Co-efficient of friction 0,38-0,45

p = 0,05 N/mm²v=0,6 m/s
on steel, hardened and ground

Wear 0,23 µm/km

p = 0,05 N/mm²v=0,6 m/s
on steel, hardened and ground

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Thermal	dry / moist		standard
Glass transition temperature	60 / 5	°C	DIN 53 765
Heat distortion temperature HDT, Method A	75	°C	ISO-R 75 Verfahren A (DIN 53 461)
Heat distortion temperature 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 (23° C)	0,23	W/(K·m)	
Specific heat (23° C)	1,7	J/g.K	
Coefficient of thermal expansion (23-55°C)	8	10 ⁻⁵ /K	DIN 53 752

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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

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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		
Resistance to hot water, washing soda:	(+)		
Resistance to weathering	-		

(1) Testing of semi-finished products

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