

## Material Data Sheet










---

# PA6 black












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

---

### 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

---

Material Data Sheet	PA6 black		
<b>Mechanical</b>	<b>dry / moist</b>		<b>standard</b>
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 <sup>2</sup>	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

<b>Co-efficient of friction</b> p = 0,05 N/mm <sup>2</sup> v=0,6 m/s on steel, hardened and ground	0,38-0,45		
<b>Wear</b> p = 0,05 N/mm <sup>2</sup> v=0,6 m/s on steel, hardened and ground	0,23	µm/km	

---

Material Data Sheet

PA6 black

<b>Thermal</b>	<b>dry / moist</b>		<b>standard</b>
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)
<b>Max. service temperature</b>			
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 <sup>-5</sup> /K	DIN 53 752

---

Material Data Sheet

PA6 black

<b>Electrical</b>	<b>dry / moist</b>		<b>standard</b>
Dielectric constant (10 <sup>6</sup> Hz)	3,7-7		DIN 53 483, IEC-250
Dielectric loss factor (10 <sup>6</sup> Hz)	0,031-0,3		DIN 53 483, IEC-250
Specific volume resistance	10 <sup>^13</sup>	Ω*cm	DIN IEC 60093
Surface resistance	10 <sup>^12</sup>	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

---

Material Data Sheet

PA6 black

<b>Miscellaneous</b>	<b>dry / moist</b>		<b>standard</b>
Density	1,13	g/cm <sup>3</sup>	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

All information supplied by or on behalf of Merrem Materials or Merrem Kunststoffen in relation to its products, in any form, is supported by research and believed to be reliable, but Merrem Materials or Merrem Kunststoffen assumes no liability whatsoever in respect of application, processing or use made of the aforementioned information or products, or any consequence there of. The buyer undertakes all liability in respect of the application, processing or use of the aforementioned information or product, whose quality and other properties he shall verify, or any consequence there of. No liability whatsoever shall attach to Merrem Materials or Merrem Kunststoffen for any infringement of the rights owned or controlled by a third party intellectual, industrial or other property by reason of the application, processing or use of the aforementioned information or products by the buyer.

---