

## TECHNICAL DATA SHEET

### Spectrum Filaments PA6 Neat Black

The material offered by Spectrum Group Sp. z o.o. has been developed and adapted to general modeling. Tests performed by Spectrum Group Sp. z o.o. have showed that it is feasible to use the offered product in most 3D printers operating in FDM/FFF technology. Before the first use, it is advisable to print out a hard proof to check if the filament is compatible with user's printer. All shown data are typical properties. The information were processed with the best knowledge of the manufacturer and it is for information only. Users should confirm results by their own tests.

Identification	
Trade name	Spectrum Filaments PA6 Neat Black
Chemical name	Polyamide with mineral filler
Use	Additive Manufacturing
Origin	Spectrum Group Sp. z o.o.

Filament specification	
Diameter	1.75mm $\pm$ 0.05mm
Verify your spool	Yes

Material properties			
Properties		Typical value	Test method
Density		1.25 g/cm <sup>3</sup>	ISO 1183-3
Melt flow rate (MFR)	250°C / 2,16kg	5.5 g/10min	ISO 1133
Melt volume rate (MVR)	250°C / 2,16kg	5.5 cm <sup>3</sup> /10min	ISO 1133
Tensile strength	at 23°C / 50% rh; @50mm/min	78 MPa	ISO 527
Elongation at max. force	at 23°C / 50% rh; @50mm/min	4.4%	ISO 527
Modulus of elasticity	at 23°C / 50% rh; @1mm/min	3.4 GPa	ISO 527
Charpy impact strength	at 23°C / 50% rh	90 kJ/m <sup>2</sup>	ISO 179 1eU
Head distortion temperature	HDT A	90°C	ISO 75
Operation temperature	max. 20.000h	120°C	IEC 60216
Service temperature	max. 200h	160°C	
Water absorption	23°C / 24h	<0.3%	ISO 62
Linear mould shrinkage		0.3-0.5%	DIN 16742
Insulation resistance strip electrode	R25	>10 <sup>12</sup> $\Omega$	DIN IEC 60167
Surface resistance	ROB	>10 <sup>12</sup> $\Omega$	DIN IEC 60093

#### Guideline for print settings\*

Nozzle temperature	240-270°C
Bed temperature	80-100°C
Active cooling fan	Yes (50% as default)
Layer height**	≥ 0.15mm
Brim/skirt	2 outlines with 1 layer
Print speed**	30-80mm/s
Nozzle diameter	≥ 0.50mm
Bed adhesive	buildTak, Magigoo, 3DLac, Dimafix
Heated chamber	recommended

\* settings are based on a 0.5mm nozzle

\*\* the range depends on the geometrical complexity

In case filament has become wet, it should be dried. Drying at 80°C for 12h is recommended.

#### Key features:

- exceptionally low processing shrinkage of 0.3%
- a very wide temperature range for prolonged operations (120°C, 20.000h) as well as a very high temperature up to 160°C for short-time operation (max. 200h)
- good tribological properties, including dry friction conditions such as in slide bearing
- chemical resistance to lubricants and oils
- an unusually good adhesion to 3D printer build platforms as compared to other polyamide-based filaments