

# PA11 Black V1 Powder Technical Data Sheet

Flexible and impact-resistant powder for complex structures and outdoor applications.

PA11 black powder offers excellent elongation and impact resistance, suitable for printing high-toughness and complex structural parts. Naturally UV-resistant and highly chemical-resistant, it meets the needs of various industrial and outdoor applications.

## Benefits

- High elongation and impact resistance
- Ideal for thin-wall structure

- Excellent environmental stability
- High reuse rate

## Applications

- Medical and orthotic devices: prosthetics, insoles, orthotic supports with both flexibility and durability

- Automotive: lightweight impact-resistant parts for interior clips, housings, and flexible connectors

- Consumer and electronics: ideal for eyeglass frames, sports equipment, electronic housings

- Functional prototypes: for testing hinges, latches, jigs, and other high-stress structures

- Complex designs and thin-wall structures: for precision details and high flexibility industrial parts

## Mechanical Properties

Property	Testing Method	Typical Values (X-Direction)	Typical Values (Y-Direction)	Typical Values (Z-Direction)
Tensile Strength (MPa)	ISO 527-2	53.97	53.11	53.16
Elongation at Break (%)	ISO 527-2	41.17	35.05	33.36
Tensile Modulus (MPa)	ISO 527-2	1691.37	1877.66	1766.58
Flexural Strength (MPa)	ISO 178	70.83	69.02	66.25
Flexural Modulus (MPa)	ISO 178	1567.55	1510.41	1485.8
Charpy impact strength/ Unnotched (kJ/m <sup>2</sup> )	ISO 179-2	189.37	/	112.22
Charpy Impact Strength / Notched A (kJ/m <sup>2</sup> )	ISO 179-2	7.43	7.57	7.26
Shore Hardness D	ISO 868-2003	79.75	/	80.2

## Disclaimer

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice. Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Raise3D materials for the intended application. Raise3D makes no warranty of any kind, unless announced separately, to the fitness for any particular use or application. Raise3D shall not be made liable for any damage, injury or loss induced from the use of Raise3D materials in any particular application.

## Thermal Properties

Property	Testing Method	Typical Values (X-Direction)	Typical Values (Y-Direction)	Typical Values (Z-Direction)
Heat Deflection Temperature@0.45 MPa(°C)	ISO 75-2	145.6	153.5	142
Heat Deflection Temperature@1.8 MPa(°C)	ISO 75-2	56.3	57.9	57.6
VICAT Softening Temperature/10N(°C)	ISO 306	189.7	189.7	189.7
VICAT Softening Temperature/50N(°C)	ISO 306	177.5	177.3	177.3

## Other Properties

Property	Testing Method	Typical Values
Powder Color	/	Black
Density (g/cm <sup>3</sup> )	ISO 1183.1-2004	1.043
Powder Bed Density (g/cm <sup>3</sup> )	/	0.392
Bulk Density (g/cm <sup>3</sup> )	ISO 60 / ASTM D1895	0.538

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