Nylon 12 Carbon-filled

INDUSTRIAL GRADE MATERIALS FOR FDM 3D PRINTING

MATERIAL NAME
Nylon 12 Carbon-filled

COLOR
Black

PROCESS
FDM

PRODUCT DESCRIPTION

Nylon 12 Carbon-filled combines nylon 12 and chopped carbon fiber to achieve any FDM material's highest flexural strength and stiffness-to-weight ratio. Nylon 12CF offers the strength and rigidity to replace metal in specific applications. Replace heavy metal tools with lighter, ergonomic carbon fiber FDM tools. Validate designs faster with carbon fiber functional prototypes than costly and time-consuming metal prototypes.

TYPICAL APPLICATIONS

- Durable yet lightweight tools and functional prototypes

PRODUCT SAFETY

Most nylon products are biocompatible materials. There is no problem with normal skin contact. Only a small number of people will experience slight skin irritation.

PRODUCT DELIVERY & WAREHOUSING

- **MOISTURE CONTROL**
  Nylon is highly hygroscopic. Store in a dry environment with humidity below 50% to prevent dimensional swelling and performance degradation.
  Use sealed packaging with desiccants or vacuum storage.

- **TEMPERATURE CONTROL**
  Keep storage temperature between 5°C and 35°C. Avoid high temperatures (>60°C) that may cause deformation and low temperatures (<0°C) that may induce brittleness.

- **UV PROTECTION**
  Avoid exposure to UV light to prevent material aging, such as yellowing, brittleness, or loss of mechanical properties.

- **PHYSICAL PROTECTION**
  Prevent heavy stacking or impacts to avoid deformation or cracking.

PROPERTIES OF PRINTED MATERIAL

Properties	Test Method	Value
Hardness	/	/
Flexural modulus (Mpa)	ISO 178, GB/T 9341	XY: 2886.5 ± 144.8 MPa Z: N/A
Flexural strength (Mpa)	ISO 306, GB/T 1633	XY: 112.4 ± 1.0 MPa Z: N/A
Tensile modulus (Mpa)	ISO 527, GB/T 1040	XY: 3311.2 ± 134.9 MPa Z: 1806.6 ± 145.7 MPa
Tensile strength (Mpa)	ISO 527, GB/T 1040	XY: 77.4 ± 1.1 MPa Z: 52.2 ± 0.8 MPa
Elongation at break	ISO 527, GB/T 1040	XY: 4.2 ± 0.4 % Z: 5.0 ± 1.0 %
Poisson's Ratio	/	/
Impact strength notched Izod (J/m)	ISO 179, GB/T 1043	XY: 9.9 ± 0.7 KJ/m²
Heat deflection temperature (°C)	ISO 75	HDT @0.45 MPa: 131℃ HDT @1.8 MPa: 105℃
Glass transition,Tg (°C)	DSC, 10°C/min	55 ℃
Coefficient of themal expension(/°C)	/	/
Density (g/cm³)	ISO1183, GB/T1033	1.06 g/cm³ @23°C

Tips: Want to explore a wider range of materials? Check out *https://www.unionfab.com/materials*