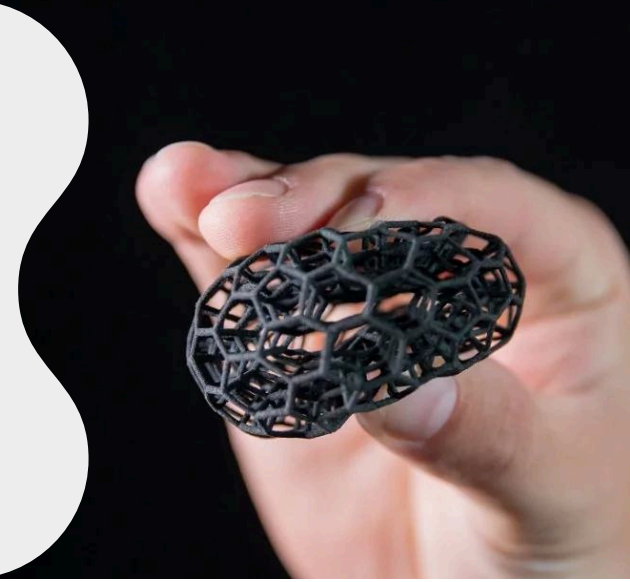




# TPU MATERIAL: THERMOPLASTIC POLYURETHANE



Manufactured by Lubrizol, TPU is a thermoplastic polyurethane powder designed for printing on the HP Jet Fusion 5210 industrial 3D printer. The properties of the material make it possible to print products that are elastic, durable, and chemically resistant.

The powder is used to make prototypes and functional components in various industries: medicine, automotive, electronics, and shoe manufacturing.

Polyurethane has high tear resistance and resistance to mechanical stress, enabling you to create durable parts that can be used in high-load and demanding environments.

## Physical characteristics

Powder density	1.16 g/cm <sup>3</sup>
Melting point (by DSC)	192 °C
Glass transition point (by DSC)	-31 °C

## Print process properties

Print mode	1 passage
Layer thickness	100 µm
Layer print time	9.5 sec
Printing time if the work area is fully loaded	11 hours

## Physical characteristics

Hardness (5 s, Shore A), XY	88 ± 3
Hardness (5 s, Shore A), Z	88 ± 3
Abrasion volume loss, XY	120 mm <sup>3</sup>
Abrasion volume loss, Z	110 mm <sup>3</sup>
Tensile strength, XY	10.5 MPa
Tensile strength, Z	6.5 MPa
Relative elongation at break, XY	185%
Relative elongation at break, Z	55%
Compression set	31%
Dielectric constant	3-7
Dielectric strength	15-30 kV/mm

## Immunity to fluids

Exposure to alkaline medium	Almost no effect
Exposure to benzene	Almost no effect
Exposure to acetone	Almost no effect
Exposure to methyl alcohol	Almost no effect
Exposure to acetic acid	Almost no effect
Exposure to carbon dioxide	Almost no effect
Exposure to engine oil	Almost no effect
Exposure to UV radiation	Almost no effect
Exposure to IR radiation	Almost no effect

Exposure to bleach	Affecting
Exposure to sulfuric acid	Affecting
Exposure to hydrochloric acid, 20% solution	Affecting
Exposure to phosphoric acid, 10% solution	Affecting

## Dimensional tolerance

Rated < 80 mm, X/Y axes	< ± 0.6 mm
Rated < 80 mm, Z axis	< ± 1.8 mm
Rated > 80 mm, X/Y axes	< ± 1.0%
Rated > 80 mm, Z axis	< ± 2.0%

## Electrical characteristics

Surface resistance	$1.8 \times 10^{11} \Omega$
Bulk resistance	$8.9 \times 10^{10} \Omega$