

LUBRIZOL AND ADDITIVE MANUFACTURING

Lubrizol is a market leader of innovative engineered polymer solutions and is dedicated and committed to expanding its portfolio of thermoplastic polyurethane (TPU) solutions suitable for 3D printing (3DP) technologies.

This in-depth portfolio can be offered either in pellet form for filament extrusion purposes or powder TPU (MJF* or SLS) to meet strict market requirements for printed parts, such as high strength and high abrasion resistance, high mechanical properties and outstanding surface/haptic properties. A bio-based** solution is also available for FFF.

3DP MARKETS

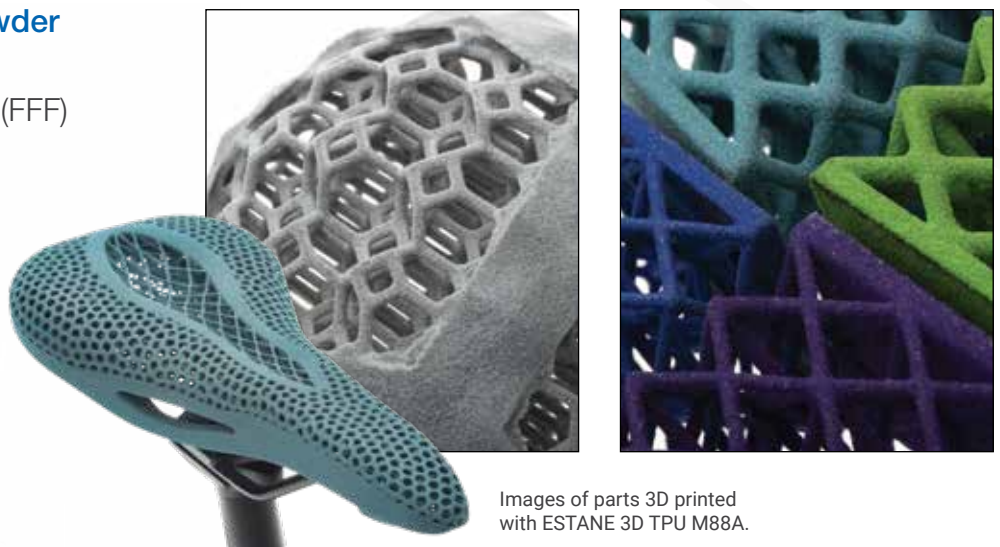
- Healthcare
- Consumer Goods
- Automotive
- Industrials
- Electronics
- Footwear

Pellets for filament and powder TPU solutions for:

- Fused Filament Fabrication (FFF)
- Multi Jet Fusion™ (MJF)*


TPU pellet developments for Fused Granulate Fabrication (FGF)

*Proprietary HP® technology
 **Bio-based content as certified in accordance with ASTM D6866.



Images of parts 3D printed with ESTANE 3D TPU M88A.

LUBRIZOL ESTANE® 3D TPU SOLUTIONS FOR FUSED FILAMENT FABRICATION APPLICATIONS

| Product Name | Shore Hardness | Key Benefits |
|-----------------------------------|----------------|--|
| ESTANE® 3D TPU F70D-065TR UV PL* | 70D | Low temperature flexibility, high stiffness, impact resistance and UV stability |
| ESTANE® 3D TPU F98A-030CR HC PL* | 98A | Excellent mechanical properties, transparency, low warpage and shrinkage |
| ESTANE® 3D TPU F95A-030 BR ECO PL | 95A | Sustainable, plant-based solution with broad printing window  |
| ESTANE® 3D TPU F94A-055 OR HH PL* | 94A | Durable with high heat temperature performance |

*This grade is also available under the Ultimaker Material Alliance program.

DEVELOPED IN CO-OPERATION WITH COLORFABB, VARIOSHORE TPU FILAMENT IS AVAILABLE WITH THE FOLLOWING KEY FEATURES:

- Expandable TPU foam structure (density: 0.7-1.1 g/cm³)
- Hardness ranging from 60 to 92 Shore A
- Printable with FFF Bowden printer and direct drive printers



This image is courtesy of colorFabb.

HP® PARTNERSHIP

Lubrizol is an official HP Open Materials and Applications Platform partner. In collaboration with HP, Lubrizol released ESTANE® 3D TPU M95A powder, the only TPU certified material approved for use in HP's Jet Fusion™ 4200 3D Printing Solution. More recently followed by ESTANE® 3D TPU M88A, a softer and more flexible powder material, approved for use in HP's Jet Fusion 5200 series. To learn more about additional developments with HP, please contact us.



LUBRIZOL ESTANE® 3D TPU SOLUTIONS FOR POWDER BED FUSION APPLICATIONS

| Product Name | Shore Hardness | Key Benefits |
|----------------------------------|----------------|---|
| ESTANE® 3D TPU M95A-545 OR UV PW | 95A | Unique flexible and durable material for the use on HP's Jet Fusion 4200 series. Powder TPU offering a PA12-like process, wide range of working temperatures, excellent chemical, hydrolysis and abrasion resistance. |
| ESTANE® 3D TPU M88A-565 OR UV PW | 88A | Unique flexible and durable material for the use on HP's Jet Fusion 5200 series, with easy unpacking at room temperature, ability to dye parts for bright colors and skin contact certification. Ideal solution for complex lattice design. |

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