

**Technical Data Sheet**
**Type: Polyester Thermoplastic Polyurethane (TPU)**
**Uses: Fused Filament Fabrication (FFF)**
**Material Information: Injection Molded (or Extruded) Part**

Physical Properties	Value (Metric)	Unit	Test Method
Hardness (5 sec)	70	Shore D	ASTM D-2240
Specific Gravity	1.18		ASTM D-792
Tensile Strength	6100 (42)	lb/in <sup>2</sup> (MPa)	ASTM D-412
Ultimate Elongation	350	%	ASTM D-412
Tensile Stress at:			
- 100 % Elongation	3600 (25)	lb/in <sup>2</sup> (MPa)	ASTM D-412
- 300 % Elongation	5600 (39)	lb/in <sup>2</sup> (MPa)	ASTM D-412
T <sub>m</sub> (by DSC)	200	°C	Lubrizol DSC

- Prior to testing samples were conditioned at 23°C for 48 hours.
- Based on injection samples (80 mils or 2 mm).
- Listed values are "typical (average) values" and should/cannot be applied for specification purposes.

**Application Information: Fused Filament Fabricated (FFF) Part**

Physical Properties	Value (Metric)	Unit	Test Method
Specific Gravity	1.12		ASTM D-792
Tensile Strength	4000 (28)	lb/in <sup>2</sup> (MPa)	ASTM D-412
Ultimate Elongation	320	%	ASTM D-412
Tensile Stress at:			
- 100 % Elongation	2900 (20)	lb/in <sup>2</sup> (MPa)	ASTM D-412
- 300 % Elongation	4000 (28)	lb/in <sup>2</sup> (MPa)	ASTM D-412

- Tested parts were printed in XY orientation via using MakerBot Replicator (80 mils or 2 mm).

**Supply Form and Standard Packaging**

- **Estane® 3D TPU F70D-035 TR UV** is supplied in pellet form and packaged in 25 kg bags.

**Material Preparation**

- Prior to processing, **Estane® 3D TPU F70D-035 TR UV** must be dried at **100°C** for 2-4 hours.
- It is recommended to dry the material in a desiccant type dryer. Target dew point should be **-40°C**.
- Depending on the applied processing technique, the maximum moisture level should be 0.02%.

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### Extrusion Processing Conditions

- Estane® 3D TPU F70D-035 TR UV can be processed on any conventional extruder.

### Fused Filament Fabrication Conditions

- Estane® 3D TPU F70D-035 TR UV can be printed on most commercial fused filament fabrication printers using 1.75 mm and 2.9 mm diameter filament

### Recommended Starting Fused Filament Fabrication Conditions

Printing Conditions	Values
Extruder Temperature	250°C
Platform Temperature	100°C
Extrusion Speed	100 mm/sec
Infill	Hexagonal

- The starting FFF conditions are based on MakerBot Replicator.

For further information refer to Lubrizol Advanced Materials processing guides.

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