

Technical Data Sheet

Type: Polycaprolactone 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)	98	Shore A	ASTM D-2240
Specific Gravity	1.21		ASTM D-792
Tensile Strength	4600 (32)	lb/in ² (MPa)	ASTM D-412
Ultimate Elongation	380	%	ASTM D-412
Tensile Stress at:			
- 100 % Elongation	2400 (16)	lb/in ² (MPa)	ASTM D-412
- 300 % Elongation	4100 (28)	lb/in ² (MPa)	ASTM D-412
T _m (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	1.09		ASTM D-792
Tensile Strength	4000 (28)	lb/in ² (MPa)	ASTM D-412
Ultimate Elongation	380	%	ASTM D-412
Tensile Stress at:			
- 100 % Elongation	1800 (13)	lb/in ² (MPa)	ASTM D-412
- 300 % Elongation	3400 (23)	lb/in ² (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 F98A-030 CR HC is supplied in pellet form and packaged in 25 kg bags.

Material Preparation

- Prior to processing, Estane® 3D TPU F98A-030 CR HC 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 F98A-030 CR HC can be processed on any conventional extruder.

Fused Filament Fabrication Conditions

- Estane® 3D TPU F98A-030 CR HC 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	230 °C
Platform Temperature	110 °C
Extrusion Speed	90 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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