

Technical Data Sheet
Type: Aromatic polycarbonate-based Thermoplastic Polyurethane (TPU)

Features: High heat performance

Uses: 3D Printing using Fused Filament Fabrication (FFF) technology

Physical Properties	Value (Metric)	Unit	Test Method
Hardness (5 sec)	94	Shore A	ISO 868
Specific Gravity		g/cm3	ISO 2781
Tensile Strength (XZ)	43	MPa	ISO 527
Ultimate Elongation (XZ)	315	%	ISO 527
Tensile Stress at (XZ):			
- 50 % Elongation	10	MPa	ISO 527
- 100 % Elongation	13	MPa	ISO 527
- 300 % Elongation	40	MPa	ISO 527
Tensile Strength (ZY)	19	MPa	ISO 527
Ultimate Elongation (ZY)	190	%	ISO 527

- Filament dried at 70°C during 2h in a convection oven prior to printing
- Printing conditions: Ultimaker S5, extrusion temp = 230C, fan = 20%, base = 60C, speed = 25mm/s, flow rate = 107%, layer thickness = 0.2mm, core = 0.4mm
- Prior to testing samples were conditioned at 23°C for 48 hours.

Supply Form and Standard Packaging

- **ESTANE® 3D TPU F94A-055 OR HH PL** is supplied in pellet form and packaged in 25kg bags.

Material Preparation

- Prior to strand extrusion, **ESTANE® 3D TPU F94A-055 OR HH PL** pellets must be dried at **100°C** for 2-4 hours.
- It is recommended to dry the pellets in a desiccant type dryer. Target dew point should be **-40°C**.
- The produced filaments must be kept in a sealed bag with enough silica gel desiccant until use, in moisture free conditions during printing, and dried overnight at 70C in a standard convection oven in case of moisture exposure
- Depending on the applied processing technique, the maximum moisture level should be 0.02%.

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Recommended Strand Extrusion Conditions:

- **ESTANE® 3D TPU F94A-055 OR HH PL** can be processed on any conventional extruder.

	°C
Zone 1	200
Zone 2	205
Zone 3	210
Zone 4	210
Die	205

For further information refer to Lubrizol Advanced Materials processing guides.

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