

## Technical Data Sheet

**Type:** Estane<sup>®</sup> 54640 is an 85A aromatic Polyether-Based Thermoplastic Polyurethane (TPU).

**Features:** Very good physical properties and hydrolysis resistance and wide processing window for calendering.

**Uses:** Melt coating/calendering, flat die/cast film extrusion.

Physical Properties	Value (Metric)	Unit	Test Method
Hardness (5 sec)	85 +/- 3	Shore A	ASTM D-2240
Specific Gravity	1.13		ASTM D-792
Tensile Strength	6600 (45.5)	psi (MPa)	ASTM D-412
Ultimate Elongation	520	%	"
Tensile Stress at			
- 100 % Elongation	900 (6.2)	psi (MPa)	ASTM D-412
- 300 % Elongation	1700 (11.7)	psi (MPa)	"
Tear Strength			
Graves	390 (7.0)	lb/in (kg/mm)	ASTM D-624 (die C)
Trouser	120 (2.1)	lb/in (kg/mm)	ASTM D-470
Taber Loss (1000 rev)	275 (135)	°F (°C)	Lubrizol Advanced Materials
T <sub>m</sub> (by DSC)	-56 (-49)	°F (°C)	Lubrizol Advanced Materials

- Prior to testing samples were conditioned at 23°C for 48 hours.
- Based on extruded sheet (30 mils).
- Listed values are "typical (average) values" and should / cannot be applied for specification purposes.

### Supply Form and Standard Packaging

- Estane<sup>®</sup> 54640 TPU is supplied in pellet form and packaged in 50 lb bags or 1000 lb boxes.

### Material Preparation

- Prior to processing, Estane<sup>®</sup> 54640 TPU must be dried at 220°F (104°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%.

### Processing Conditions

- Estane<sup>®</sup> 54640 TPU can be processed on any conventional extruder.

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<http://go.lubrizol.com/EP>

**Recommended Starting Extrusion Temperature Profile:**

	°F/°C
<b>Zone 1</b>	<b>340/171</b>
<b>Zone 2</b>	<b>350/177</b>
<b>Zone 3</b>	<b>360/182</b>
<b>Zone 4</b>	<b>370/188</b>
<b>Adapter (5)</b>	<b>370/188</b>
<b>Die Zone 1 (6)</b>	<b>370/188</b>
<b>Die Zone 2</b>	<b>370/188</b>

Melt Temp. Mid-Range: 365°F/185°C  
Screen Pack Recommendation: 20/40/80/20

**Application Information: High Performance Film & Sheet**

Properties	Value (Metric)	Unit	Test Method
<b>Tensile Set (200% elongation)</b>	<b>14</b>	%	ASTM D-412
<b>Volume Swell in Water (24h/23°C)</b>	<b>1.3</b>	%	ASTM D-471
<b>USP Class VI Status</b>	<b>Not Tested</b>		
<b>FDA 177.1680 (dry bulk foods)</b>	<b>Complies</b>		
<b>FDA 177.2600 (wet/fatty foods)</b>	<b>Complies</b>		
<b>NSF 61 Status</b>	<b>Listed</b>		

**For further information refer to Lubrizol Advanced Materials processing guides.**

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