

Technical Data Sheet

Type: ESTANE® 58309 is a 85A Polyether-Type Thermoplastic Polyurethane (TPU).

Features: Good Physical Properties and Reduced Surface Tack.

Uses: Flat Die/Cast Film and Blown Film Extrusion, Injection Molding.

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	6500 (44.8)	psi (MPa)	ASTM D-412
Ultimate Elongation	570	%	"
Tensile Stress at:			
- 100% Elongation	900 (6.2)	psi (MPa)	ASTM D-412
- 300% Elongation	1600 (11.0)	psi (MPa)	"
Tear Strength:			
- Graves	450 (8.1)	lb/in	ASTM D-624 (die C)
- Trouser	130 (2.3)	lb/in	ASTM D-470
Taber Loss (1000 rev)	0.007 (21)	oz (mg)	ASTM D-3389 (H18, 1000g)
T _m (by DSC)	275 (135)	°F (°C)	Lubrizol Advanced Materials
T _g (by DSC)	-51 (-46)	°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® 58309 TPU is supplied in pellet form and packaged in 50 lb bags or 1000 lb boxes.

Material Preparation

- Prior to processing, ESTANE® 58309 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® 58309 TPU can be processed on any conventional extruder.

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Recommended Starting Extrusion Temperature Profile:

	°F/°C
Zone 1	350/176
Zone 2	360/183
Zone 3	370/188
Zone 4	380/194
Adapter (5)	380/194
Die Zone 1 (6)	380/194
Die Zone 2	380/194

Melt Temp. Mid-Range: 375°F/191°C
Screen Pack Recommendation: 20/40/80/20

Recommended Starting Injection Molding Temperature Profile:

	°F/°C
Rear	380 (193)
Middle	400 (204)
Front	420 (216)
Nozzle	420 (216)
Melt Temperature*	420 (216)

*Melt temperature by pyrometer check of air shot

Fill Rate: Slow to Moderate

Screw RPM: 20-50

Back Pressure: 50 psi

Injection Pressure: 3,000-7,000 psi (21-48 MPa)

Molding Pressure: 2,000-4,000 psi (14-28 MPa)

Mold Shrinkage*: 0.014 in/in (cm/cm)

** Mold shrinkage was determined using ASTM D955 - 4" diameter x .125" thick molded disk. Actual shrinkage will vary with part size, design, and processing conditions. Please contact a Lubrizol Advanced Materials technical representative for more information.*

High Performance Film & Sheet

Properties	Value (Metric)	Unit	Test Method
Tensile Set (200% elongation)	19	%	ASTM D-412
Kofler Melt Point	293 (145)	°F (°C)	Lubrizol Advanced Materials
Volume Swell in Water (24h/23°C)	1.7	%	ASTM D-471

For further information refer to Lubrizol Advanced Materials processing guide.

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