

Technical Data Sheet

Type: Estane[®] R195A is aromatic, polyether-based thermoplastic polyurethane (TPU).

Features: Excellent physical properties, low temperature performance and clarity with a wide processing window for extrusion.

Uses: Blown and flat die/cast film extrusion. Injection and blow molding.

Physical Properties	Standard No.	Units	Value
Hardness	ASTM D792	Shore A	95
Specific Gravity	ASTM D2240		1.14
Mechanical			
Tensile Strength	ASTM D412	psi (MPa)	9250 (64)
Ultimate Elongation	ASTM D412	%	435
Tensile Stress:			
At 100% elongation	ASTM D412	psi (MPa)	1600 (11)
At 300% elongation	ASTM D412	psi (MPa)	4500 (31)
Tear Strength			
Graves	ASTM D624 (die C)	lb/in (kg/mm)	680 (12.1)
Trouser	ASTM D470	lb/in (kg/mm)	180 (3.1)
Taber Loss (1000 rev)	ASTM D3389 (H18, 1000g)	Oz (mg)	0.0012 (34)
Tm (by DSC)	Lubrizol	°F(°C)	349 (176)
Tg (by DSC)	Lubrizol	°F(°C)	-51 (-46)

- 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 R195A TPU is supplied in pellet form and packaged in 50 lb bags or 1000 lb boxes.

Material Preparation

- Prior to processing, Estane R195A 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%.

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Processing Conditions

Estane R195A TPU can be processed on any conventional extruder.

Injection Conditions

	F/°C°
Zone 1	350/177
Zone 2	360/182
Zone 3	370/188
Zone 4	380/193
Adapter (5)	390/199
Die Zone 1(6)	390/199
Die Zone 2	390/199

Melt Temp. Mid-Range: 385°F/196°C
Screen Pack Recommendation: 20/40/80

Application Information: Polyether TPU for High Performance Film/Sheet

Application Properties	Value	Unit	Test Method
Tensile Set (200% Elongation)	13	%	ASTM D412
Kofler Melt Point	336 (169)	°F/°C	Lubrizol
Volume Swell in Water (24h/23C)	0.5	%	ASTM D471
USP Class VI Status	NOT TESTED		
FDA 175.105	COMPLIES ²		
FDA 177.1680 (dry bulk foods)	COMPLIES ^{1,2}		
FDA 177.2600 (wet / fatty foods)	COMPLIES ²		
NSF 61 Status	NOT LISTED		

¹ For use in repeat applications

² Contact foods only of types per table 1 of 176.170 categories I, II, IV-B, VI-B, VII-B at temperatures not to exceed 275°F

For further information refer to Lubrizol processing guides.

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