



Estane® 58309 TPU

Lubrizol Advanced Materials, Inc. - Thermoplastic Polyurethane Elastomer (Polyether)

Wednesday, November 6, 2019

General Information

Product Description

Type: Estane® 58309 is an 85A aromatic Polyether-Based Thermoplastic Polyurethane (TPU).

Features: Good Physical Properties and Reduced Surface Tack.

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

General

| | | | |
|-------------------|-----------------------|---------------------|-----------------|
| Material Status | • Commercial: Active | | |
| Availability | • Asia Pacific | • Latin America | • North America |
| Features | • Aromatic | | |
| Uses | • Blown Film | • Cast Film | |
| Agency Ratings | • FDA 21 CFR 177.2600 | • NSF STD-61 | |
| RoHS Compliance | • RoHS Compliant | | |
| Forms | • Pellets | | |
| Processing Method | • Blown Film | • Extrusion | |
| | • Cast Film | • Injection Molding | |

ASTM & ISO Properties ¹

| Physical | Nominal Value | Unit | Test Method |
|--|---------------|--------|-----------------|
| Density / Specific Gravity | 1.13 | | ASTM D792 |
| Molding Shrinkage - Across Flow | 0.014 | in/in | ASTM D955 |
| Elastomers | Nominal Value | Unit | Test Method |
| Tensile Set (200% Strain) | 19 | % | ASTM D412 |
| Tensile Stress (100% Strain, 0.0300 in) | 899 | psi | ASTM D412 |
| Tensile Stress (300% Strain, 0.0300 in) | 1600 | psi | ASTM D412 |
| Tensile Strength (Break, 0.0300 in) | 6500 | psi | ASTM D412 |
| Tensile Elongation (Break, 0.0300 in) | 570 | % | ASTM D412 |
| Tear Strength ² (0.0300 in) | 454 | lbf/in | ASTM D624 |
| Tear Strength (Split) | 130 | lbf/in | ASTM D470 |
| Hardness | Nominal Value | Unit | Test Method |
| Durometer Hardness (Shore A, 5 sec) | 82 to 88 | | ASTM D2240 |
| Thermal | Nominal Value | Unit | Test Method |
| Glass Transition Temperature | -50.8 | °F | DSC |
| Melting Temperature | 275 | °F | DSC |
| Kofler Melting Temperature | 293 | °F | Internal Method |
| Aging | Nominal Value | Unit | Test Method |
| Change in Volume (73°F, 24 hr, in Water) | 1.7 | % | ASTM D471 |

Processing Information

| Injection | Nominal Value | Unit |
|------------------------|---------------|------|
| Drying Temperature | 219 | °F |
| Drying Time | 2.0 to 4.0 | hr |
| Suggested Max Moisture | 0.020 | % |

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| Injection | Nominal Value | Unit |
|------------------------|---------------|------|
| Rear Temperature | 379 | °F |
| Middle Temperature | 399 | °F |
| Front Temperature | 421 | °F |
| Nozzle Temperature | 421 | °F |
| Processing (Melt) Temp | 421 | °F |
| Injection Pressure | 3050 to 6960 | psi |
| Injection Rate | Slow-Moderate | |
| Holding Pressure | 2030 to 4060 | psi |
| Back Pressure | 50.0 | psi |
| Screw Speed | 20 to 50 | rpm |

Injection Notes

Air Dew Point: -40°C

| Extrusion | Nominal Value | Unit |
|------------------------|---------------|------|
| Drying Temperature | 219 | °F |
| Drying Time | 2.0 to 4.0 | hr |
| Suggested Max Moisture | 0.020 | % |
| Cylinder Zone 1 Temp. | 349 | °F |
| Cylinder Zone 2 Temp. | 361 | °F |
| Cylinder Zone 3 Temp. | 370 | °F |
| Cylinder Zone 4 Temp. | 381 | °F |
| Adapter Temperature | 381 | °F |
| Melt Temperature | 381 | °F |
| Die Temperature | 381 | °F |

Extrusion Notes

Dew Point: -40°C

Screen Pack Recommendation: 20/40/80/20

Notes

¹ Typical properties: these are not to be construed as specifications.

² Die C