Lubrizol
Engineered Polymers

# Estane® S385A TPU

**Type:** Estane® S385A is a Shore 85A, polyester based thermoplastic polyurethane (TPU) with excellent transparency. FDA approved (21 CFR 177.2600, 177.1680)

**Uses:** Injection Molding

| Physical Properties | Standard No. | Units | Value |
|---|---|---|---|
| Hardness | ASTM D2240 | Shore D<br>Shore A | 85 |
| Specific Gravity | ASTM D792 | $g/cm^3$ | 1.19 |
| Mechanical | | | |
| Tensile Stress: | ASTM D412 | $kgf/cm^2$ | |
| At 100% elongation | | | 55 |
| At 300% elongation | | | 100 |
| Tensile Strength | ASTM D412 | $kgf/cm^2$ | 350 |
| Ultimate Elongation | ASTM D412 | % | 780 |
| Tear Resistance (Die C) | ASTM D624 | kgf/cm | 95 |
| Abrasion Loss | ISO 4649 | $mm^3$ | 35 |
| Compression Set | ASTM D395 | | |
| At 23°C X22hr | | % | 15 |
| At 70°C X22hr | | % | 45 |
| Mold Shrinkage | ASTM D955 | m/m | 0.026 |
| Thermal | | | |
| Vicat Softening Temperature | ASTM D1525 | °C | 62 |

*Test samples were annealed at 100°C and 24 hours at room temperature before testing.
**These are typical values and should not be used for specifications.

## Injection Molding Guide

These settings are to be used only as a guide. This is a typical injection molding temperature profile based on the Test Machine (conditions based on a 75 ton machine with a general purpose screw – L/D 17 – Ø 35mm).
The optimal run conditions for specific equipment will vary depending on the machine and mold design.

## Drying Conditions

| Drying | Conditions |
|---|---|
| Recommend 1 | 70-80°C for 4-5 hours by dehumidifying dryer |

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## Injection Conditions

| Barrel Temperature | |
|---|---|
| **Feeding Zone** | 180~195 |
| **Metering Zone** | 185~200 |
| **Nozzle** | 190~205 |
| **Injection Conditions (I)** | |
| **Injection Pressure (psi)** | 1700~2300 |
| **Injection Speed** | Moderate |
| **Hold pressure (psi)** | 1200-1800 |
| **Injection Time(s)** | 12 -18 |

| Mold Temperature | |
|---|---|
| 10-40 | |
| **Injection Conditions (II)** | |
| **Back Pressure (psi)** | 30-80 |
| **Screw Speed (rpm)** | 180-200 |
| **Cycle Time(s)** | 25-35 |

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