



Lubrizol LifeSciences

Pellethane® 5863-82AE TPU

Type: Aromatic Polyether-based Thermoplastic Polyurethane (TPU)

Features: Good physical properties, hydrolysis resistance, low temperature performance and abrasion with a wide processing window for extrusion.

Process: Extrusion and Injection Molding.

| Properties | Test Method | Values | Units |
|---|--------------------------------|-------------------------|--------------------------------|
| Durometer Hardness, Shore | ASTM D2240 | 82 | A |
| Specific Gravity | ASTM D792 | 1.104 | |
| Tensile Modulus 100% elongation 300% elongation | ASTM D412 | 700 (4.8) 1100 (7.6) | psi (MPa) psi (MPa) |
| Ultimate Tensile Strength | ASTM D412 | 5500 (37.9) | psi (MPa) |
| Ultimate Elongation | ASTM D412 | 650 | % |
| Tear Strength Graves Trouser | ASTM D624 (die C) ASTM D470 | 400 (7.1) 130 (2.3) | lb/in (kg/mm) lb/in (kg/mm) |
| Taber Loss (1000 rev) | ASTM D3389 (H18, 1000g) | 0.0008 (22) | oz (mg) |
| T _m (by DSC) | Lubrizol | 266 (130) | °F (°C) |
| T _g (by DSC) | Lubrizol | -58 (-50) | °F (°C) |
| Application Properties | | | |
| Tensile Set (200% elongation) | ASTM D412 | 11 | % |
| Kofler Melt Point | Lubrizol | 257 (125) | °F (°C) |
| Haze (pressed between glass) | ASTM D1003 | 7.0 | % |
| Volume Swell in Water (24h/23C) | ASTM D471 | 2.0 | % |

Prior to testing samples were conditioned at 23°C for 48 hours.

Based on extruded sheet (30 mils)

These test results are based on small samples and do not necessarily represent average results from larger test samples.

This information should NOT be used for establishing engineering or manufacturing guidelines and specifications.

Handling Conditions:

Properties of all thermoplastic polyurethane products in the molten state are adversely affected by moisture. For the best results, always dry the material at least 2-4 hours at 104°C (220°F) in a machine mounted dehumidifying dryer (a desiccant dryer delivering air at 1 liter/sec/kg at -40°C dew point (1 cfm/lb at -40°F dew point). A dehumidifying dryer hopper or one shot loader is also recommended. Depending on the applied processing technique, the maximum moisture level should be 0.02%. Never to exceed 500°F (270°C) melt.

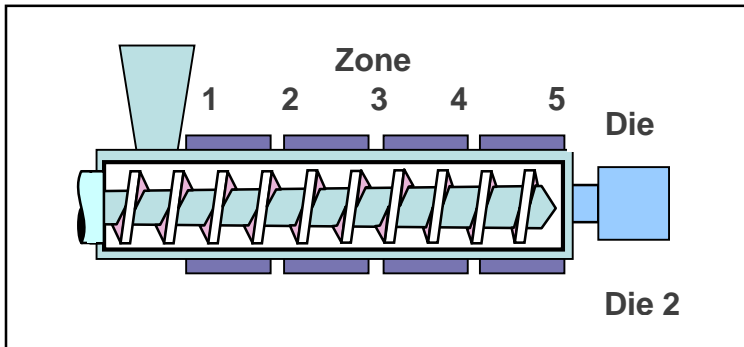
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Processing Conditions:

Pellethane® 5863-82AE can be processed on any conventional extruder or molder.

Recommended Starting Extrusion Temperature Profile:

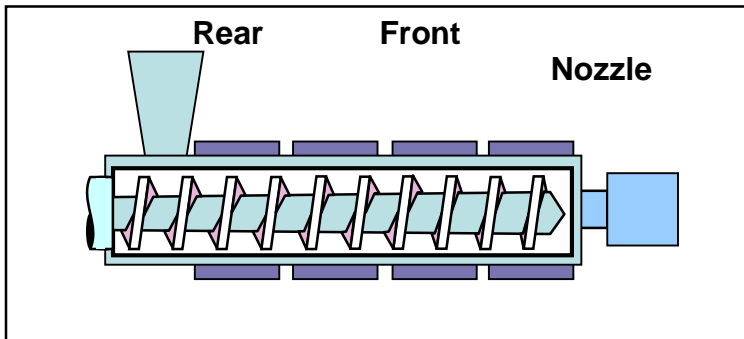


20/40/80/20

| | °F/°C |
|------------------|---------|
| Zone 1 | 330/166 |
| Zone 2 | 340/171 |
| Zone 3 | 350/177 |
| Zone 4 | 360/182 |
| Adapter 5 | 360/182 |
| Die | 360/182 |
| Die 2 | 360/182 |

Screen Pack Recommendation:

Recommended Starting Injection Molding Temperature Profile:



| | °F/°C |
|---------------|---------|
| Rear | 340/171 |
| Front | 350/177 |
| Nozzle | 360/182 |
| Melt | 360/182 |
| Mold | 60/15 |

For further information refer to Lubrizol Advanced Materials processing guides.

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