

Tecothane® TPU – 20% Barium Sulfate

Type: Medical Grade Aromatic Polyether-based Thermoplastic Polyurethanes (TPUs) with 20% loading of Barium Sulfate

Features: Variety of hardnesses, good mechanical properties, good chemical resistance, radiopaque and can be color-matched

Process: Extrusion or Injection Molding

| Products & Properties | ASTM Test | TT-2074A-B20 | TT-2085A-B20 | TT-2095A-B20 | TT-2055D-B20 | TT-2065D-B20 | TT-2069D-B20 | TT-2072D-B20 | TT-2075D-B20 |
|-----------------------------------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Durometer (Shore Hardness) | D2240 | 77A | 87A | 97A | 55D | 67D | 70D | 75D | 77D |
| Specific Gravity | D792 | 1.30 | 1.32 | 1.35 | 1.36 | 1.38 | 1.38 | 1.38 | 1.40 |
| Flexural Modulus (psi) | D790 | 1,800 | 3,500 | 8,500 | 19,000 | 31,000 | 50,000 | 80,000 | 190,000 |
| Ultimate Tensile (psi) | D412 | 5,200 | 6,600 | 8,200 | 8,600 | 8,700 | 7,500 | 7,900 | 7,600 |
| Ultimate Elongation (%) | D412 | 650 | 600 | 450 | 360 | 300 | 320 | 270 | 200 |
| Tensile Modulus (psi) | D412 | | | | | | | | |
| at 100% Elongation | | 500 | 700 | 1600 | 2500 | 3100 | 3500 | 3800 | 3600 |
| at 200% Elongation | | 700 | 1000 | 2000 | 3600 | 4500 | 4000 | 4600 | NA |
| at 300% Elongation | | 1000 | 1500 | 3500 | 6000 | 7500 | 6500 | NA | NA |
| Mold Shrinkage (in/in) | D955 | .008-.012 | .008-.012 | .006-.010 | .004-.008 | .004-.008 | .004-.008 | .004-.006 | .004-.006 |

Note: These test results are based on small samples of Tecothane® polyurethanes and do not necessarily represent average results from larger test samples. This information should not be used for establishing engineering or manufacturing guidelines.

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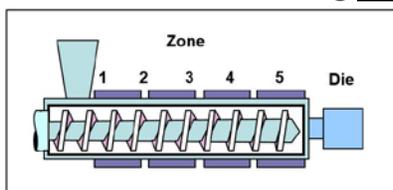
HANDLING CONSIDERATIONS

Properties of all thermoplastic polyurethane products in the molten state are adversely affected by moisture. For best results, always dry the material at least two hours at 95°C (200°F) or overnight at 80°C (180°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 exceed 500°F (260°C) melt temperature!

Processing Conditions:

- Tecothane® TPU's can be processed on any conventional extruder or molder.

Recommended Starting Extrusion Temperature Profile:

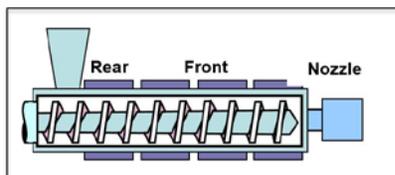


| | TT-2074A-B20 | TT-2085A-B20 | TT-2095A-B20 | TT-2055D-B20 | TT-2065D-B20 | TT-2069D-B20 | TT-2072D-B20 | TT-1075D-M |
|------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|
| | °F/°C | °F/°C |
| Zone 1 | 360/182.8 | 370/187.7 | 370/187.7 | 380/193.3 | 380/193.3 | 380/193.3 | 390/198.8 | 390/198.8 |
| Zone 2 | 370/187.7 | 380/193.3 | 380/193.3 | 390/198.8 | 390/198.8 | 390/198.8 | 400/204.4 | 400/204.4 |
| Zone 3 | 380/193.3 | 390/198.8 | 390/198.8 | 400/204.4 | 400/204.4 | 400/204.4 | 410/210 | 410/210 |
| Zone 4 | 390/198.8 | 400/204.4 | 400/204.4 | 410/210 | 410/210 | 410/210 | 420/215.5 | 420/215.5 |
| Adapter 5 | 400/204.4 | 410/210 | 410/210 | 420/215.5 | 420/215.5 | 420/215.5 | 420/215.5 | 420/215.5 |
| Die | 400/204.4 | 410/210 | 410/210 | 420/215.5 | 420/215.5 | 420/215.5 | 430/221.1 | 430/221.1 |

Screen Pack Recommendation: 50/250/100

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Recommended Starting Injection Molding Temperature Profile:



| | TT-2074A-20 | TT-2085A-B20 | TT-2095A-B20 | TT-2055D-B20 | TT-2065D-B20 | TT-2069D-B20 | TT-2072D-B20 | TT-2075D-B20 |
|---------------|---------------|----------------|----------------|--------------|----------------|----------------|----------------|----------------|
| | °F/°C | °F/°C | °F/°C | °F/°C | °F/°C | °F/°C | °F/°C | °F/°C |
| Rear | 330/165.5 | 365/185 | 370/187.7 | 370/187.7 | 370/187.7 | 370/187.7 | 370/187.7 | 375/190.5 |
| Front | 350/176.6 | 375/190.5 | 385/196.1 | 385/196.1 | 385/196.1 | 385/196.1 | 385/196.1 | 390/198.8 |
| Nozzle | 355/179.4 | 380/193.3 | 390/198.8 | 395/201.6 | 400/204.4 | 400/204.4 | 400/204.4 | 405/207.2 |
| Melt | <400/<204.4 | <410/<210 | <415/<212.7 | <420/<215.5 | <435/<223.8 | <435/<223.8 | <440/<226.6 | <450/<232.2 |
| Mold | 50-90/10-32.2 | 50-110/10-43.3 | 50-120/10-48.8 | 50-130/10- | 50-130/10-54.4 | 50-130/10-54.4 | 50-130/10-54.4 | 50-130/10-54.4 |

For further information refer to Lubrizol Advanced Materials processing guides.

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