

# Arothane™ ARP-W

## ► Description

Arothane™ ARP-W is medical grade aromatic polyether-based thermoplastic polyurethane (TPU) loaded with 30-50% Tungsten as radiopacifier. It exhibits exceptional radiopacity compared to Barium Sulfate especially for small-dimension or thin-walled devices. ARP-W maintains superior mechanical properties, excellent hydrolytic resistance, oxidative stability, chemical resistance and biocompatibility of clear grade ARP. It is typically a material of choice for guidewire coating or extrusion process.

## ► Biocompatibility

Arothane™ ARP-W pellets passed the Hemolysis test (ISO 10993-4), MEM Elution test (ISO 10993-5), Intracutaneous Irritation test (ISO 10993-10:2010 & 10993-23:2021), Dermal Sensitization test (ISO 10993-10:2010, 2021), Acute Systemic Toxicity test (ISO 10993-11) and *in vivo* Pyrogen test (ISO 10993-11, USP <151>.)

## ► Storage

Arothane™ ARP-W TPU pellets should be stored in a cool and dry environment in their original containers until used. Storage temperature should not exceed 85°F/30°C. If only a portion of TPU pellets was used, the container with remaining TPU pellets should be tightly closed.

## ► Products and Properties

| Arothane™ ARP-W                          | ASTM Test | ARP-85A-W30 | ARP-85A-W40 | ARP-85A-W50 |
|--|-----------|-------------|-------------|-------------|
| Durometer (Shore hardness)               | D2240     | 85A         | 85A         | 85A         |
| Specific Gravity                         | D792      | 1.50        | 1.71        | 1.98        |
| Flexural Modulus (psi)                   | D790      | 5,200       | 5,500       | 7,250       |
| Ultimate Tensile (psi)                   | D412      | 4,900       | 4,700       | 4,600       |
| Tensile Modulus at 100% Elongation (psi) | D412      | 1,000       | 1,000       | 1,000       |
| Tensile Modulus at 300% Elongation (psi) | D412      | 1,900       | 1,700       | 1,600       |
| Ultimate Elongation (%)                  | D412      | 520         | 570         | 600         |
| Mold Shrinkage (mm/mm)                   | D955      | 0.006-0.012 | 0.005-0.010 | 0.005-0.010 |

Note : These test results are based on small samples of Arothane™ ARP-W and do not represent the results from larger test samples. The manufacturing parameters should be adjusted according to users' actual conditions.

## ► Processing Information

Arothane™ ARP-W TPU pellets are hygroscopic and therefore should be **dried before processing**. Depending on the climate, the pellets absorb moisture rapidly when exposed to the atmosphere. The moisture might cause the degradation of polymers during processing and form bubbles or streaks in the molded and extruded parts. To ensure efficient and successful processing, the moisture content in TPU pellets is recommended to be **less than 0.05%**. A dehumidifying dryer is recommended for drying Arothane™ ARP-W TPU. **The recommended drying temperature is 205-220/105-115 (°F/°C) for a minimum of 5 hours at -40°F/ -40°C dew point.**



► Recommended Extrusion Temperature Profile :

| Arothane™ ARP-W | ARP-85A-W30<br>(°F / °C) | ARP-85A-W40<br>(°F / °C) | ARP-85A-W50<br>(°F / °C) |
|-----------------|--------------------------|--------------------------|--------------------------|
| Zone 1          | 385/195                  | 375/190                  | 365/185                  |
| Zone 2          | 390/200                  | 385/195                  | 375/190                  |
| Zone 3          | 390/200                  | 385/195                  | 375/190                  |
| Zone 4          | 400/205                  | 390/200                  | 385/195                  |
| Adapter 5       | 400/205                  | 390/200                  | 385/195                  |
| Die             | 390-410/200-210          | 385-400/195-205          | 375-390/190-200          |

Screen Pack Recommendation : 50/200/100

► Recommended Injection Molding Temperature Profile :

| Arothane™ ARP-W | ARP-85A-W30<br>(°F / °C) | ARP-85A-W40<br>(°F / °C) | ARP-85A-W50<br>(°F / °C) |
|-----------------|--------------------------|--------------------------|--------------------------|
| Rear            | 365/185                  | 355/180                  | 350/175                  |
| Front           | 375/190                  | 365/185                  | 355/180                  |
| Nozzle          | 385/195                  | 375/190                  | 365/185                  |
| Melt            | 420-435/215-225          | 410-430/210-220          | 400-420/205-215          |
| Mold            | 60-85/15-30              | 70-95/20-35              | 70-95/20-35              |

