

Quadraflex™ ALE-90A-B30

Thermoplastic Polyurethane Elastomer (Polyether)

Biomerics, LLC

Message:

Quadraflex™ ALE-90A-B30 is high performance aliphatic polyether thermoplastic polyurethane. The polymer is loaded with 30% barium sulfate by weight, is naturally white and supplied in small pellets for ease of processing. The material exhibits excellent mechanical properties, oxidative stability, biocompatibility, elasticity, non-yellowing during aging and softening at body temperature. The resin has consistent melt flow properties making it ideal for extrusion.

Quadrathane™, Quadraflex™, Quadraban™ and Quadraplast™ performance polymers are primarily used in life science and medical applications including vascular access devices, surgical supplies, respiratory devices, tracheotomy devices, and other medical applications. Typical end products include tubing, catheter parts, balloons, and various medical device components. These performance polymers are available in a variety of durometers, radiopacifiers, colors, and custom formulations.

| General Information | |
|------------------------|--------------------------------------|
| Filler / Reinforcement | Barium sulfate, 30% filler by weight |
| Features | High elasticity |
| | Antioxidation |
| | Workability, good |
| | Good liquidity |
| | Good color stability |
| | Biocompatibility |
| | aliphatic |
| Uses | Resistance |
| | Pipe fittings |
| | Surgical instruments |
| | Medical/nursing supplies |
| Appearance | White |
| Forms | Particle |
| Processing Method | Extrusion |
| | Injection molding |

| Physical | Nominal Value | Unit | Test Method |
|---|---------------|-------------------|-------------|
| Specific Gravity | 1.34 | g/cm ³ | ASTM D792 |
| Melt Mass-Flow Rate (MFR) (190°C/2.16 kg) | 7.5 | g/10 min | ASTM D1238 |
| Molding Shrinkage - Flow | 0.60 - 1.0 | % | ASTM D955 |
| Hardness | Nominal Value | Unit | Test Method |
| Durometer Hardness (Shore A) | 90 | | ASTM D2240 |
| Mechanical | Nominal Value | Unit | Test Method |
| Flexural Modulus | 24.1 | MPa | ASTM D790 |
| Elastomers | Nominal Value | Unit | Test Method |

| | | | |
|--|-------------------|------|-----------|
| Tensile Stress (10% Strain) | 8.27 | MPa | ASTM D412 |
| Tensile Stress | | | ASTM D412 |
| 100% strain | 13.1 | MPa | ASTM D412 |
| 300% strain | 26.2 | MPa | ASTM D412 |
| Tensile Strength (Break) | 33.8 | MPa | ASTM D412 |
| Tensile Elongation (Break) | 450 | % | ASTM D412 |
| Thermoset | Nominal Value | Unit | |
| Post Cure Time (38°C) | 6.0 - 10 | hr | |
| Injection | Nominal Value | Unit | |
| Drying Temperature | 54.4 | °C | |
| Drying Time | 4.0 | hr | |
| Suggested Max Moisture | < 3.0E-3 | % | |
| Rear Temperature | 177 | °C | |
| Front Temperature | 191 | °C | |
| Nozzle Temperature | 196 | °C | |
| Processing (Melt) Temp | 204 | °C | |
| Mold Temperature | 4.44 - 32.2 | °C | |
| Injection Rate | Slow | | |
| Screw Compression Ratio | 2.5:1.0 - 3.5:1.0 | | |
| Injection instructions | | | |
| Injection Speed: 10 g/secCooling/Hold Time: Long, at least 50% of cycle (20 to 60 secs depending on thickness) | | | |
| Extrusion | Nominal Value | Unit | |
| Drying Temperature | 54.4 | °C | |
| Drying Time | 4.0 | hr | |
| Suggested Max Moisture | < 0.030 | % | |
| Cylinder Zone 1 Temp. | 171 | °C | |
| Cylinder Zone 2 Temp. | 182 | °C | |
| Cylinder Zone 3 Temp. | 188 | °C | |
| Cylinder Zone 4 Temp. | 193 | °C | |
| Melt Temperature | 193 | °C | |
| Die Temperature | 193 - 216 | °C | |
| Back Pressure | 6.89 - 12.4 | MPa | |
| Extrusion instructions | | | |
| Screen Pack: 250 meshScrew Speed: Low sheer, 150 to 250 rpmWater Bath: 80 to 110°F | | | |

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Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

