

Arlon 3000XT® for Artificial Lift



Overview

- Proprietary cross-linked PEEK formulated for extreme high temperature environments and applications
- Proven performance at high temperatures ranging from 260°C to 300°C
- Enhanced mechanical and electrical properties for thermal electrical insulating products
- Compared to competitors, Arlon® 3000XT performed better when tested at 300°C and fluid aged for 112 days (ASTM D638)

Artificial Lift

- Arlon® 3000XT is used as an electrical thermal insulator designed for artificial lift applications
- Typically used in electrical submersible pumps to protect sensitive electrical connectors and feedthroughs transmitting critical data in extreme temperature and pressure environments
- Generally, wells have high voltage and lifetime requirements in temperatures ranging from 230°C to greater than 280°C
- Reliability is essential for a continuous signal to surface equipment that requires enhanced mechanical properties with little degradation

Performance

- Tested after fluid aging in mineral oil and held at constant temperatures ranging from 260°C to 300°C for 112 days
- Tensile strength, Elongation at Break, and Young's Modulus showed no statistically significant difference at 260°C and 280°C
- Surface and volume resistivity above standard insulative requirements at high temperatures, tested up to 250°C
- At 300°C, significant decrease in Elongation at Break from 7% to 3%, likely due to increased crystallinity from annealing process characteristics
- Arlon® 3000XT may also be suitable for use at 300°C, depending on application requirements

Manufacturing

- Net or near net moldable material, no machining operations required
- Injection molded custom or stock shapes with final machining also available

Price

- Less expensive material compared to competitors

Arlon 3000XT® Mechanical Property Test Results

% Change of the Mean after 112 Days					
Temperature	Tensile Strength	Elongation @ Break	Young's Modulus	Mass % Δ	Vol % Δ
240°C	-0.45%	-17.43%	-3.26%	-0.1%	0.1%
260°C	+2.15%	+14.79%	+8.01%	+0.2%	+0.3%
280°C	+2.94%	+29.09%	+7.75%	+0.3%	+0.5%
300°C	-14.40%	-52.65%	36.51%	+1.0%	+1.5%

Arlon 3000XT® Electrical Property Test Results

