



High-Quality Lead Extrusion

At Lubrizol, technicians and engineers have extensive experience in lead extrusion materials, design and applications.

Extreme Precision for Critical Medical Applications

To optimize the clinical outcome of polyurethane and silicone electrostimulation lead extrusion we provide specific materials for cardiac rhythm management, neurostimulation, and deep brain stimulation.

Lead extrusion is also used in various active electrode applications, such as insulation to cover the electrodes used to deliver an electrical stimulus.

Implantable Lead Extrusion for Active Electrode Applications

By partnering with Lubrizol you'll have access to high-quality lead extrusion utilizing top of the line polymers. We offer industry-leading TPUs like Carbothane™, Tecothane™ and Pellethane® that provide thinner walls, more flexible lead design and unmatched overall quality resulting in significantly fewer issues during the manufacturing process compared to other materials. Our lead tubing adheres to the highest level of precision, process and quality control to achieve your required dimensional, surface, cosmetic and mechanical properties for all of your lead extrusion designs. Our TPU polymers, such as Pellethane®, have been used in FDA-approved implantable systems for decades.

Materials, Tooling, Process and Quality Control

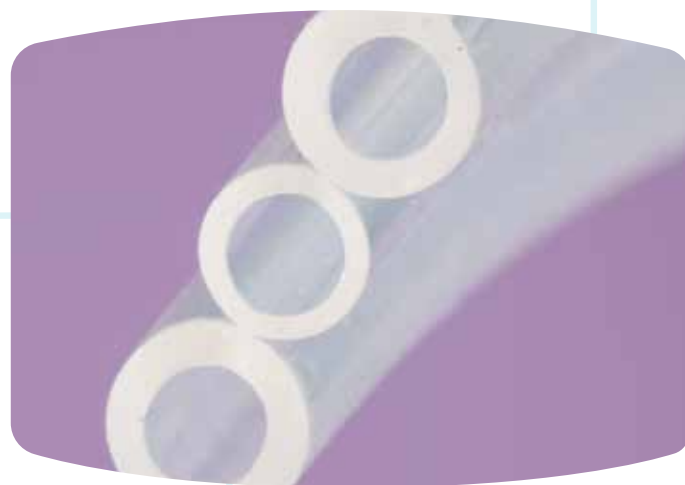
We optimize product attributes by developing material-specific extrusion processes, tooling and controls such as surface abrasion resistance, biomechanical properties, torque and pushability. Our annealing process helps alleviate the internal stresses and dimensional instability inherent in polyurethane tubing. Our team is well trained in inspection to ensure precision and quality requirements are met and no issues occur during inspection, assembly or any other step during the manufacturing process.

Industry Competence that Provides Confidence

We are a valued supplier to the leading CRM and neurostimulation OEMs in the market today. By providing integrated support across materials and extrusion process by offering broad range of TPUs and silicone materials for delivering lead tubing and extrusion solutions for the most sensitive and complex medical applications.

Our expertise includes:

- Materials -
 - Specific Lubrizol materials:
 - Pellethane
 - Tecothane
 - Carbothane
 - Other materials:
 - Silicone
 - Polyester and polyether urethane (TPU)
 - Aromatic and aliphatic urethane (TPU)
 - Polycarbonate-urethane co-polymer
 - Polyurethane-silicone co-polymer
- Tight Wall tolerances $\pm 0.0005"$ (0.013 mm)
- Annealing for stress relief
- Single-lumen and multilumen configurations
- 100% visual inspection, as required



About Lubrizol Life Science - Lubrizol partners with customers to speed their innovative medical devices and differentiated pharmaceutical products to market. Our dedicated team provides best-in-class polymers and excipients, along with state-of-the-art product design, development, and manufacturing services, with the ultimate goal of creating solutions that improve patient outcomes. For more information visit www.lubrizolmeddevicecm.com.