



## Dexamethasone-Loaded Polymers for Implantable Systems

### Minimize Inflammation and Accelerate Product Development

All implantable systems trigger a foreign body response—an inflammatory cascade that results in fibrous encapsulation of any foreign object. While some implantable devices can tolerate the foreign body response, many next generation bio-sensors, controlled drug delivery devices, and tissue scaffolds require efficient interaction with surrounding tissue. Fibrous encapsulation can have detrimental effects on these devices, but choosing the right material can help.

The Health team at Lubrizol Life Science (LLS Health) is addressing the growing need for implantable materials with our dexamethasone-loaded polymer offering. By combining trusted, biocompatible polymers (silicone, TPU, EVA, PLGA, and others) with a safe, effective anti-inflammatory agent (dexamethasone), we can supply ready-made material that is ideal for prototyping and product development efforts. Dexamethasone-loaded polymers simplify the product development process, helping you commercialize your implantable system faster.

#### Common Challenges Caused by Inflammation:

- Reduced electrical conductivity
- Inability to integrate with existing tissue
- Poor drug release
- Pain and discomfort in patients

**Dexamethasone-Loaded Polymers for Implantable Systems** - LLS Health has decades of experience developing and manufacturing drug-device combination products. Our in-house capabilities include extensive modeling, physical characterization, injection molding, high-shear mixing, extrusion, co-extrusion, and compounding. We have formulated a range of drugs, including highly potent compounds and controlled substances, and LLS Health has established preferred relationships with the world's leading polymer suppliers and CMOs, which ensures a seamless path to commercialization for our clients. Our ability to supply custom materials with different base polymers and drug loadings allows us to meet your specific needs.

## Applications for Dexamethasone-Loaded Polymers:

- Neurostimulation devices
  - Cardiac pacemaker leads
  - Cochlear implant electrodes
- Implantable sensors
  - Continuous glucose monitors
  - Other next-generation monitoring systems
- Implantable drug delivery systems
- Cosmetic and reconstructive implants
- Artificial heart valves and blood vessels

## Available Form Factors:

- Raw material for processing
- Intermediate
- Test article
- Molded or extruded final product

## Polymer Options:

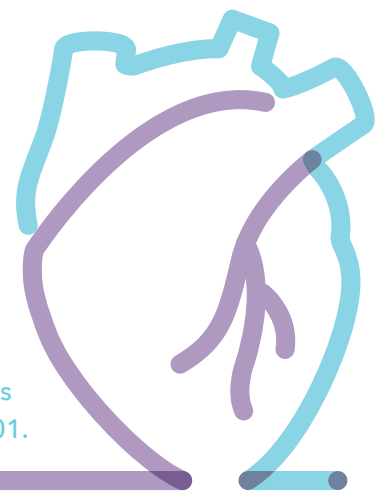
- Biodurable thermoplastics (TPU, EVA, etc...)
- Silicone (LSR or HCR)
- Biodegradable thermoplastics (PLGA, PLA, PCL, etc...)

## Processing Capabilities:

- Hot melt extrusion (HME)
- Co-extrusion (core-sheath devices)
- Injection molding
- Cryo-milling and jet milling
- Surface dip and spray coating
- High-shear mixing

## Analytical Services:

- Method development and validation
- In vitro drug elution testing
- ICH-compliant stability programs



For more information, visit [lubrizolcdmo.com](http://lubrizolcdmo.com) or call us toll free at +1 610-861-4701.