Sustained local delivery of therapeutic agents

Drug delivery platforms enhance patient care
Material innovations for drug delivery

DSM is a global leader in biomedical materials science – experience that we are now using to create advanced drug delivery technologies. Our proprietary bioresorbable polymers provide the foundation that enables biopharmaceutical companies to formulate implantable drug delivery systems for specific applications. This technology assists them in creating a platform for delivery of medications to a precise target area in the body, with controlled release from several days to multiple months.

From identifying appropriate existing materials to crafting new ones, our flexibility helps us meet the precise needs and specifications of each partner. Working together in this way, we are creating sustained drug delivery solutions for new dosage forms aimed at the latest pharmaceuticals and at established drugs to extend product life cycles or offer a competitive advantage. We also have the know-how to help companies overcome formulation challenges and manage specifications for difficult active ingredients they may encounter.

Drug delivery technology

More than 10 years of development and clinical studies support the value of our polyesteramide (PEA) biodegradable polymers. PEA primarily degrade through the action of enzymes that act on the material’s surface. Such surface erosion allows for steady degradation over the prescribed period, which can assure controlled, more sustained delivery of drugs.

Drug delivery devices incorporating our PEAs are safe and well suited for use in the body. They are biocompatible and also exhibit extremely low inflammatory response. Our partners count on these attributes – and the reliability of our materials – since a patient’s recovery and quality of life often depend on the therapy.

Our resorbable PEAs can be configured into a variety of forms and formulations tailored to each customer’s specific uses and customized to release medication according to the particular active ingredient. For shorter term requirements such as post-operative pain management, these materials can be formulated to deliver a drug for a period of several days. When the clinical need is prolonged, such as treatment of chronic pain, they can be engineered to elute drug for a period of months. Once the specified treatment period is over, the materials are safely resorbed.

Our technologies enable formulations of a wide range of active ingredients in a number of forms:

- Microparticles and nanoparticles with controlled particle size
- Extruded rods or fibers for in vivo injection or insertion
- Implantable films and meshes
- Coatings for metal and other substrates

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The sustained solution to many biopharmaceutical agents

Local sustained release of therapeutic agents to a wide range of tissues can enhance treatment for a number of indications – from drug-eluting stents for interventional cardiology to pain management, ophthalmology and infection control.

- **Anti-infective preparations** – Delivery of anti-infectives not only helps prevent infections, it also helps hospitals prevent added complications – a critical issue as they face reimbursement restrictions for hospital-acquired infections.

- **Specific therapeutic agents** – Our bioresorbable polymers offer biopharmaceutical companies options as they pursue new delivery devices for a wide variety of new and established pharmaceuticals. Their novel local delivery platforms offer access to previously difficult to reach tissues and improve efficacy of APIs with challenging properties.

- **Pain medications** – A wide variety of analgesics can be released to relieve acute pain due to injury or surgery and the discomfort that comes with arthritis, back pain and spinal conditions. Undertreated chronic pain is a prime target for new delivery methods, as local delivery of pain medications eliminates powerful opiates overcoming their undesirable side effects while avoiding the risk of addiction or abuse.

- **Anti-inflammatory agents** – Efficient, steady delivery of NSAIDs helps relieve many types of pain for patients in a variety of settings. When used with analgesics to combat post-surgical pain, patients are expected to recover more quickly, shortening hospital stays.

The added value of DSM partnership

Our partners can rely on DSM’s support to meet their specifications for development to final form, including manufacturing, sterilization and packaging. This bench-to-market capability is a hallmark of DSM service. We can also access extensive in-house expertise, including analytical expertise, the use of our dedicated laboratory for handling of high potency compounds, formulation and processing techniques, and a library of synthesis methods.

Working with other DSM divisions, we cross-fertilize materials science and life science knowledge and discoveries to support our partners’ drug delivery development, resulting in greater technical competencies and innovation.
Let us help you deliver

If your company is facing a drug delivery challenge that requires an innovative platform, DSM is here to help. Contact us now, and we’ll help you provide the right solution.

About DSM Biomedical
DSM is a global leader in biomedical materials sciences. We have more than 20 years of experience creating innovative, clinically proven biomaterials. We collaborate with medical device and biopharmaceutical companies as they improve products and therapies – providing solutions that help advance healthcare now and into the future.

Royal DSM is a global science-based company active in health, nutrition and materials. By connecting its unique competences in Life Sciences and Materials Sciences DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders. DSM delivers innovative solutions that nourish, protect and improve performance in global markets such as food and dietary supplements, personal care, feed, pharmaceuticals, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials.

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