Enhancing Medical Device Surfaces and Usability

Over the past decade, surface modification technology platforms have advanced significantly to improve the functionality of medical device surfaces by adding or enhancing surface characteristics. Such enhancements include lubricity, hemocompatibility, lower particulate formulations, infection resistance, tissue integration, and the ability to deliver drugs from the surface of a device. Coatings modify surface characteristics by either passivation to prevent undesirable biological responses or by activation to incorporate a specific functionality or functionalities into the device/environment interface.

The Gold Standard

SurModics technology is the preferred medical device coating among medical device manufacturers that seek performance, clinical, regulatory and manufacturing advantages. Our innovative and comprehensive coating solutions continue to demonstrate improved medical device performance, and ultimately, patient comfort and safety in a wide variety of clinical applications.

Breakthrough Solutions

- Best-in-class lubricity and durability
- Responsiveness and focus on streamlining time-to-market
- Reliable, consistent product quality and performance
- Coatings expertise and full range of services to support projects from concept to completion
- Regulatory experience in global markets including the U.S., Europe, Japan and China
- Flexibility to coat a wide variety of materials and devices
- Efficient, high-throughput manufacturing processes

SurModics provides a comprehensive training and implementation program for transfer of the coating process to the customer facility. Prior to technology transfer, we assist customers with solution characterization studies, particulate testing and pre-validation tasks to ease the introduction of our coating to our customer’s facility. To ensure the coating process continues to run smoothly, our technical staff provides refresher training to new and existing manufacturing staff. We partner with our customers to develop process improvements and implement cost savings throughout the product life cycle.

Collaborative Partnership Model

Working with SurModics

SurModics has a proven record of bringing products from concept to successful commercialization for large corporations and small emerging companies. Our customer partnership process is designed to identify an optimal technology solution and reduce time-to-market for your product. At SurModics, we regard customers as partners and strive to add to their success. For more information on how SurModics coating technologies can enhance your product, please contact us at 952-500-7000 or visit www.surmodics.com.
Performance Requirements

Once considered a novel option, surface modification of interventional medical devices has become common practice for the industry. Various coating technologies exist; however, there is considerable variation in performance. Key characteristics to consider in the selection of a coating technology include: ability to deliver desired surface-enhancing characteristics, coating durability, coating uniformity, and biocompatibility properties.

PhotoLink Technology Performance Advantages

- Superior lubricity for enhanced access and deliverability
- High coating integrity with sustained durability
- Customized coating thickness (nanometers to microns) designed to accommodate low-profile device mechanics
- Coating formulations can be combined to achieve multiple surface characteristics, such as lubricity, blood compatibility and drug delivery, on a single device
Coating Application

In addition to overall coating performance, process and manufacturing techniques are critical aspects to bringing a quality product to market. Key considerations include the type of coating application method, quality control testing, and availability of coating and testing equipment.

SurModics has developed a robust process for bringing customers from feasibility assessment to commercial manufacturing. Customers rely on us for comprehensive solutions—leveraging our polymer expertise, analytical and characterization tools, and experience with a wide variety of medical products and applications.

Substrate and Geometry Versatility

SurModics has the ability to coat a variety of different substrates (listed below) including those with or without additives such as tungsten, barium sulfate, titanium dioxide and colorants.

- Pebax® (multi durometer)
- Nylon
- Polyethylene
- Polymide
- Polyurethane
- Polystyrene
- Polyvinylchloride
- Polycarbonate
- Polyester
- PMMA
- Polysulfone
- Polyvinyl alcohol
- Polypropylene
- Polysiopeone
- Parylene
- Polyamide
- PEEK
- Silicone elastomer
- Stainless steel
- Aluminum
- Titanium
- Platinum
- Nitinol
- Gold
- Glass
- Other ceramics

Performance and Material Characterization Testing

SurModics provides extensive analytical and surface characterization capabilities and expertise. Our team of experts can assist with the determination of coating thickness and morphology and can establish pot life and shelf life of coating solutions specific to your manufacturing environment.

Manufacturing

Through our partnership with OakRiver Technology, SurModics is able to offer turn-key manufacturing solutions. SurModics’ extensive experience in coating technology, coupled with OakRiver’s unparalleled design and assembly capabilities, create superior offerings over other coating/equipment suppliers. Coating equipment is available in a standard platform, or it can be customized to meet unique device, manufacturing or facility requirements.

OakRiver offers extended validation support services, including:
- IQ/OQ documentation support for the equipment
- Extended training
- Contract engineering services

Contract Coating Services

Both technology transfer and ongoing technical support are important to a successful manufacturing operation. SurModics has an experienced staff of technical service engineers ready to support these activities on your next project. Prior to technical transfer of the coating process to your facility, SurModics can provide contract coating services to support pre-clinical studies, clinical trials, or preliminary quantities for commercialization.

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Substrate and Geometry Versatility

SurModics technologies are utilized by medical device, biotechnology and pharmaceutical companies for numerous therapeutic applications. SurModics coatings have been applied to more than 150 commercial device families worldwide.

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Lighting the Way

Hydrophilic Medical Device Coatings with Proven Clinical Performance

PhotoLink® Technology Advantage

SurModics’ PhotoLink technology involves photochemical covalent coupling to a device substrate. PhotoLink coatings remain a preferred approach to surface modification.

Technology Transfer and Technical Support

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Collaborative Partnership Model

Feasibility
Product Optimization
License Agreement
Clinical Manufacturing
Technology Transfer
Ongoing Technical Support

Technology Solutions
Deployment Optimization
Commercialization

All properties listed are typical characteristics and are not specifications. The prospective user must determine the suitability of our materials before adapting them on a commercial scale. Suggested uses of our products are not recommendations to use our products in violation of any patent or as a license under any patent of SurModics, Inc.