



LUBRICENT® UV

*UV curable hydrophilic coating
for medical devices*

ON THE SURFACE
We touch life first

MATERIALS



*Radically reduce and control
the surface friction of your
medical device*



Lubricent UV hydrophilic coating enables catheters and guidewires to navigate through the most difficult anatomies.

Minimally invasive procedures and medical devices continue to grow in healthcare worldwide.

Examples of medical devices that can benefit from a low friction hydrophilic coating include; PTCA and stent delivery catheters, guidewires, atherectomy devices, urological catheters and vascular access devices.

Lubricent UV hydrophilic coatings are easily applied to your device using one of Harland Medical Systems' automated coating systems.

LUBRICENT UV Hydrophilic Coating Chemistry

Proprietary chemistry products that enable advanced surface enhancement on your medical devices, healthcare disposables or life science products.



MATERIALS

- Superior low-friction performance
- Excellent durability
- Low particle generation
- Fast processing times
- Covalent photochemical bond to surface
- Low cure temperatures
- Single coat process for many applications

Minimally invasive surgery enabled by medical devices with advanced surface performance continue to expand. Minimally invasive procedures are patient friendly and cost effective. These techniques aid swift patient recovery and shorten hospitalization times. Constant pressures to reduce healthcare costs have led minimally invasive procedures into ever broader areas of surgical procedures, including cardiovascular, neurovascular, peripheral, urological and vascular access.

And the introduction of minimally invasive procedures into tighter and more distal anatomical areas such as neurovascular, peripheral and radial access has made low friction hydrophilic coatings essential to device performance.



Superior Lubricity

Lubricent UV coatings reduce friction as much as 98% (see next page). This lubricity enables your device to navigate tortuous anatomical pathways, while reducing tissue irritation and adding to patient comfort.

Outstanding Durability

The photochemical covalent bond to the device substrate surface produces excellent adhesion and wear resistance while minimizing particulate generation in use.

Compatible with Broad Range of Materials

Lubricent UV coatings are compatible with most medical device surface materials.

Pebax® (PEBA)	Nylon (polyamide)
Polyurethane	Polystyrene
Polyvinylchloride (PVC)	Polypropylene
Polyethylene	Parylene
Silicone elastomer	Stainless steel*
Nitinol*	Titanium*

*when used with Tylicent® Primer

Faster Process Times

Because Lubricent UV coating cures rapidly with UV light, it offers superior processing compared with heat-cured chemistries. Lubricent UV coatings usually cure within three minutes or less, while heat cured systems can take several hours to cure. And Lubricent UV

coating's lower cure temperatures have minimal impact on your device's base material.

Material Description

Harland hydrophilic coatings consist of a blend of hydrogel-forming polymer and proprietary photo-reactive compound dissolved in isopropyl alcohol. When stimulated by the specific spectrum of UV light, the photo-reactive compound crosslinks the polymer into a water-trapping hydrogel and at the same time binds the coating to the device surface.

Biocompatibility

Lubricent UV coatings have been successfully tested by an independent test facility against the ISO10993 requirements for prolonged circulating blood contact; including Cytotoxicity, Irritation, Acute Systemic Toxicity, Hemocompatibility, Allergenic Potential and Pyrogenicity.

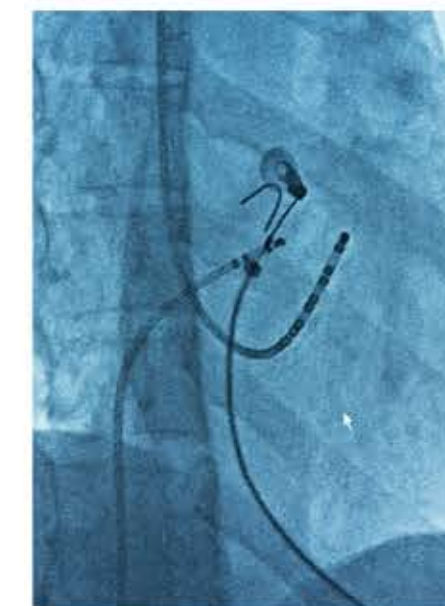
Regulatory Support

Harland offers regulatory consultative support. Device Master Files and Technical Files containing detailed data are available upon request to accelerate your regulatory submission through the FDA or notified body.

Process Flexibility

Lubricent UV coatings can be tailored to precisely meet your device's coating performance targets. The process can then be validated by Harland to prepare it for production either at your facility or in Harland's ISO 13485 compliant Coating Services.

Lubricent UV Coatings provide best in class lubricity and durability for a variety of therapeutic applications.



THE 4M FRAMEWORK™

Harland manages all of these elements as an integrated program to provide you with a complete surface enhancement solution tailored to precisely meet your particular technical, functional and economic requirements.



MATERIALS — proprietary chemistries that enable advanced surface enhancement on your medical devices, healthcare disposables or life science products. Harland provides unique, world class chemistry platforms for solving customer surface enhancement challenges.

METHODS — processes and protocols to effectively and efficiently apply and cure surface enhancing materials. Harland creates and validates robust methods that optimize the integration of Materials and Machines to meet your product's requirements.

MACHINES — automated systems designed specifically to apply and test advanced Materials on your device. Engineered to meet your technical, commercial and operating requirements including throughput and total cost of ownership.

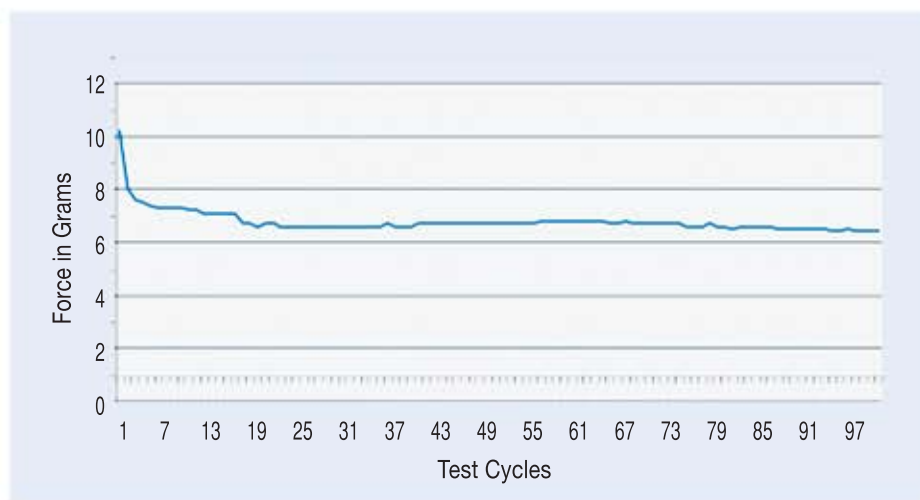
MANUFACTURING — with either Harland Contract Coating Services or customer- owned coating operations. Harland is uniquely positioned to offer a full spectrum of surface enhancement manufacturing options based on your manufacturing strategy and volume requirements.

Total Solution

As a total solution provider, Harland Medical Systems will collaborate with your team through all stages providing Feasibility and Prototype coated devices, process validation (DOE, OQ and PQ), regulatory and automation support.

Whether you choose to apply Lubricent UV coating in your manufacturing facility or take advantage of Harland's ISO13485 certified contract coating capabilities, you can be assured of Harland's total support through the entire process.

Lubricity and Durability of Lubricent UV® Coating on Pebax® 35D material



Test results from friction test of Lubricent hydrophilic coated sample. Testing conducted on a Harland FTS Friction Test System with sample pinched between silicone rubber pads at 500 grams of clamping force. The graph is of the resistance force needed to pull the coated sample between the clamped rubber pads. For comparison, uncoated surfaces typically measure 400 – 600 grams of force and PTFE coated samples exhibit 100 – 150 grams of force.



7418 Washington Avenue South
Eden Prairie, Minnesota 55344
USA • 952.941.0475

www.harlandmedical.com