LubriLAST™

LUBRICIOUS HYDROPHILIC COATING

LubriLAST™ coatings are

LUBRICIOUS:

LubriLAST coatings virtually eliminate coefficient of friction in aqueous environments.

AQUEOUS:

LubriLAST coatings contain no organic solvents. Safer and cleaner manufacturing processes are used and any concerns about residual solvents in a device are eliminated.

DURABLE:

LubriLAST retains its physical integrity and lubricity even after hundreds of cycles.

BIOCOMPATIBLE:

LubriLAST passes all stringent biocompatibility tests associated with tissue and blood contacting devices.

FLEXIBLE:

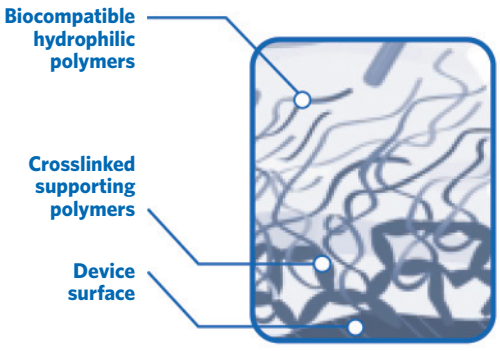
LubriLAST withstands, without flaking or delamination, use in the tortuous paths found in physiological systems. It can be applied to balloons used in a number of medical applications.

ACCEPTED:

LubriLAST is patent protected (U.S. Patent Nos. 6,238,799, and 6,866,936) and is in use in a number of approved devices for neurovascular, opthalmic, cardiovascular, urological, and surgical applications. Supporting Device Master File is also available to facilitate customers' product development and clinical trials.

How does LubriLAST™ work?

In LubriLAST™, a long chain, biocompatible hydrophilic polymer is incorporated into the coating. Part of this long hydrophilic polymer becomes entangled with the supporting network while other part remains exposed and able to become hydrated. When in the presence of water or body fluids, the hydrophilic polymer adsorbs water molecules to create a watery interface at the surface of the device. The water cushion reduces wet friction, protein adsorption and cell adhesion.



PARTNERSHIP APPROACH

AST partners with its customers from beginning to end. Our customers have complete access to AST's considerable technical expertise throughout the device design and development process. By working with customers every step of the way, small design changes can be made early in the process that prevent huge delays and overruns late in the game. Along with the coating chemistries, a customized, easy-to-use process is developed under strict ISO 9001:2008 and ISO 13485 design control. Our partnership support does not end with the finalization of coating formulation or product design. We work with the customers to ensure smooth and trouble-free implementation at their or at AST's facilities. To accelerate the approval of new devices, AST's experienced staff continues to provide assistance throughout the regulatory approval process and product introduction.

AST PRODUCTS, INC.

LubriLAST™

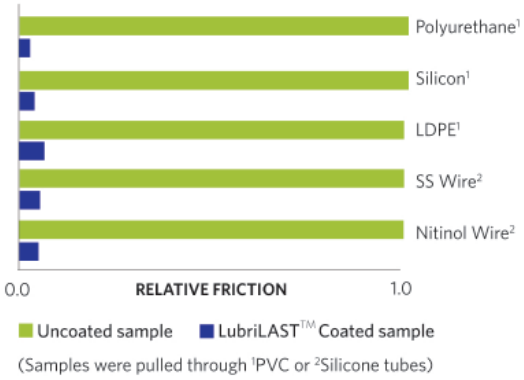
LUBRICIOUS HYDROPHILIC COATING

Friction Reduction

COEFFICIENT OF FRICTION COMPARISONS

SURFACE	COEFFICIENT OF FRICTION	
	Static	Kinetic
Uncoated PE	5.890	1.019
Uncoated PET	0.328	1.291
Silicon-oil-coated PET	0.041	0.021
LubriLAST-coated PET	0.009	<0.005

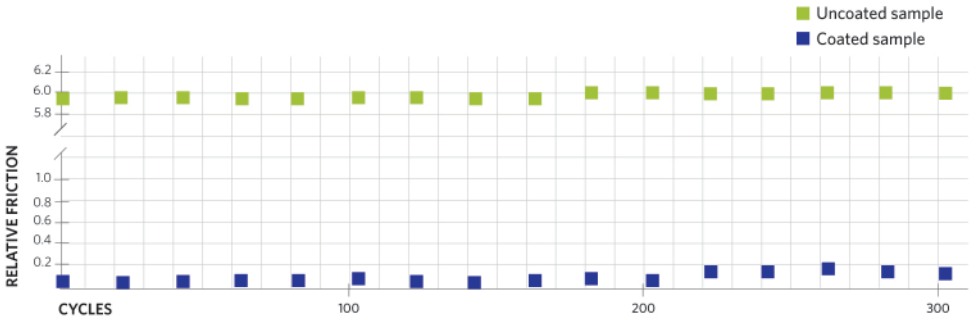
RELATIVE FRICTION REDUCTION FOR VARIOUS SUBSTRATES



(Samples were pulled through [1]PVC or [2]Silicone tubes)

Durability

LUBRILAST™ DURABILITY RESULTS AFTER 300 CYCLES IN PUSH/PULL TESTS



Coated polyurethane samples were pulled though a close-fitting PVC loop filledwith water. Force measurements were made after every 20 push/pull cycles.

Biocompatibility

TISSUE BIOCOMPATIBILITY

- Cytotoxicity
- Sensitization test in guinea pigs
- Acute intracutaneous reactivity
- Pyrogen material mediated test
- Systemic toxicity

HEMOCOMPATIBILITY

- Direct hemolysis
- In vivo thrombogenic resistance study
- Complement activation
- Coagulation study

Sterilization and Shelf Life

MEDICAL DEVICES COATED WITH LUBRILAST™ CAN BE STERILIZED BY:

- EtO
- Gamma
- E-beam
- Shelf life: LubriLAST™ sterilized products have a shelf life of 3 years

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