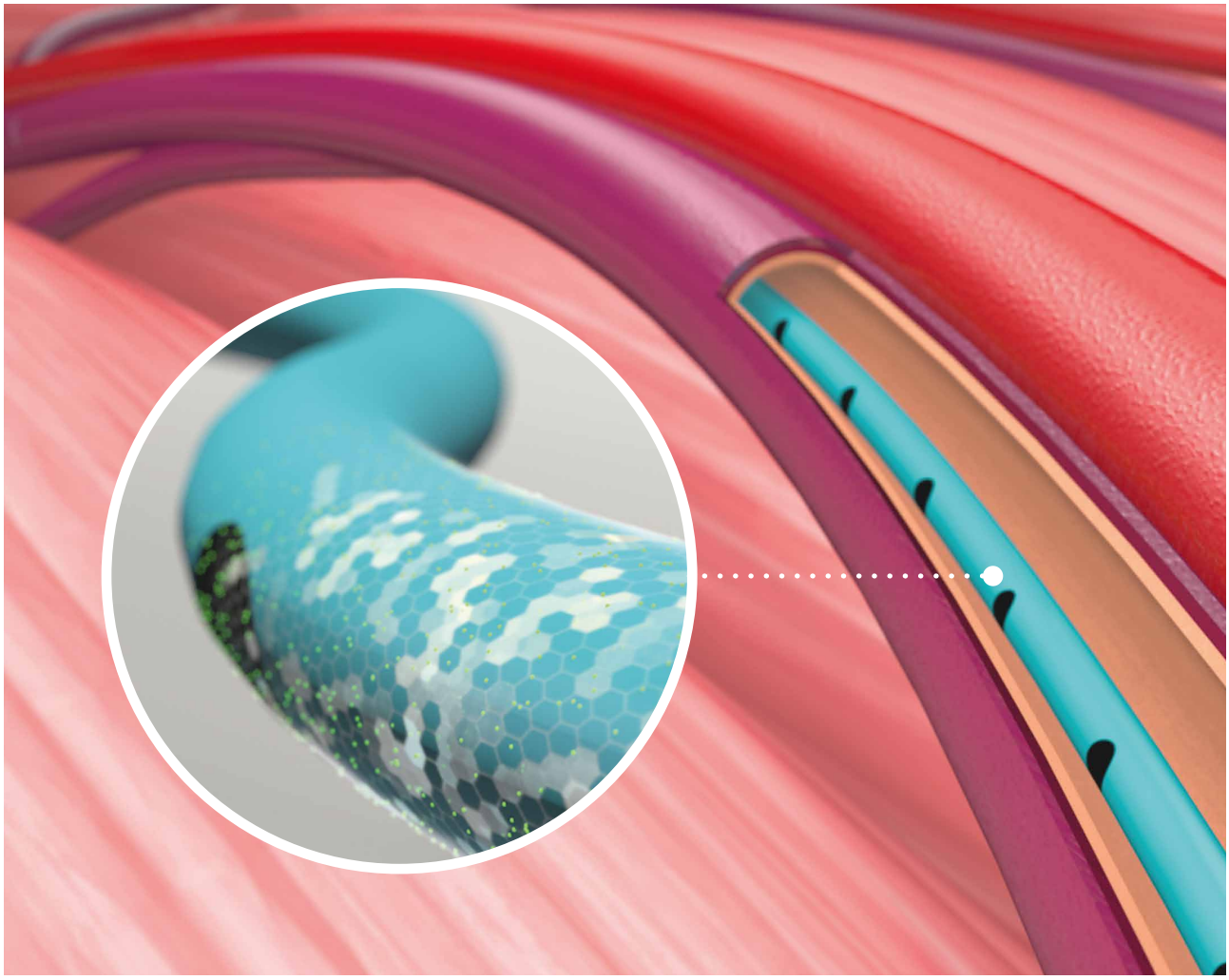
Enhanced medical device biocompatibility and performance

Polymeric additives for surface modification

Endexo®



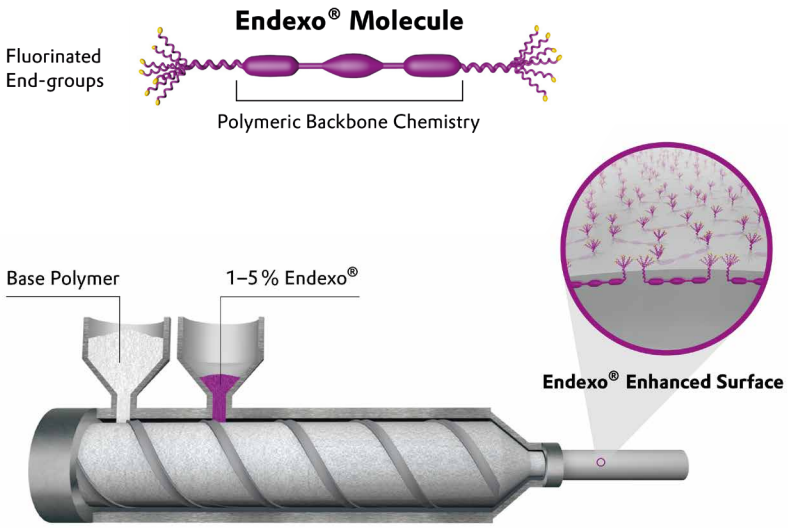
EVONIK
Leading Beyond Chemistry

Best-in-class surface modification for your medical device

A HIGHLY VERSATILE PROPRIETARY PLATFORM

- The Endexo® platform of fluoro-oligomer additives has the versatility to address specific surface property requirements and improve device performance.
- Endexo® additives are added at low concentrations to the base polymer during standard manufacturing processes of your medical device component.
- Endexo® molecules migrate to all exposed surfaces and provide uniform surface modification with no impact on device profile or usability.

MANUFACTURING PROCESS



PERMANENT SURFACE MODIFICATION

- Highly durable and passive technology
- Does not use pharmaceutical or biological compounds
- Does not elute or leach
- Present on all exposed device surfaces such as inner and outer surfaces of catheter tubing, cut surfaces and tips
- Suitable for complex geometries and small profiles

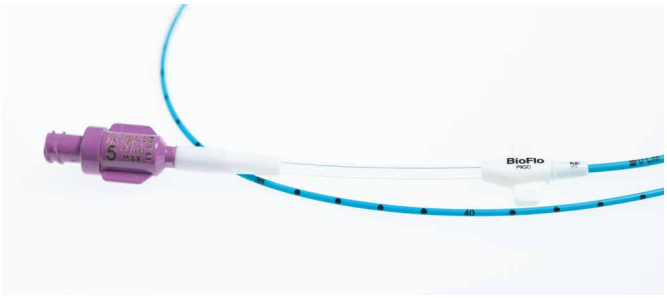
COMPATIBLE WITH A RANGE OF BASE POLYMERS

PU:	Polyurethane	**PVC:**	Polyvinyl Chloride
Si:	Silicone	**PP:**	Polypropylene
PA:	Polyamide	**PC:**	Polycarbonate
PE:	Polyethylene	**PS:**	Polysulfone

Range of Endexo® formulation chemistries

PROVEN PERFORMANCE OVER A DECADE OF COMMERCIAL USE IN MEDICAL DEVICE APPLICATIONS

With a track record of clinical benefits in devices for cardiovascular, neurovascular and renal applications, Endexo® offers a simple pathway for the development, manufacturing, and market approval of your device. Along the way, Evonik´s product development team will provide expert technical support and service.



AngioDynamics BioFlo Catheter

Proven functionality, safety and biocompatibility

Multi-functional surface modification to enhance device performance in the target application

Up to **99 %**
reduction in platelet adhesion and thrombus formation

Up to **5 log**
reduction in bacterial adhesion across multiple species

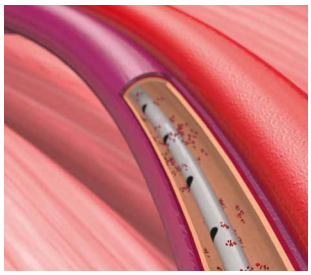
Up to **50 %**
reduction in bacterial mediated encrustation

Up to **97 %**
lower coefficient of friction (CoF)

REDUCE THROMBUS ACCUMULATION

Thrombus accumulation on biomaterial surfaces can lead to a host of device complications such as catheter occlusion, deep vein thrombosis, pulmonary embolism or blood loss. By reducing adhesion and activation of blood components, Endexo® minimizes thrombus formation, thereby reducing the risks of device failure and complications, and improving the quality of patient care.

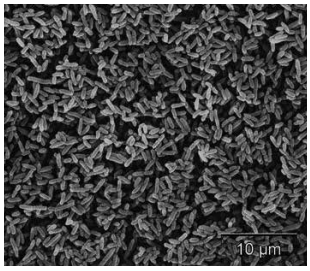
Standard device



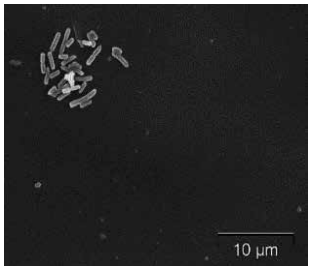
Endexo®-modified device

REDUCE BACTERIAL ADHESION AND BIOFILM FORMATION

E. coli adhesion on inoculated polyurethane catheter after 7 days of artificial urine flow



Standard device



Endexo®-modified device

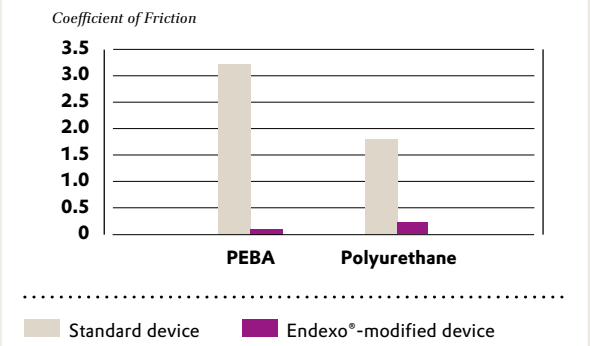
Medical devices are susceptible to bacterial adhesion, leading to device colonization and formation of biofilms resistant to antimicrobials. This type of biofouling can further cause device-related infections. Adhesion can also promote device encrustation, which can lead to device failure, patient discomfort and complications. Endexo®-modified surfaces significantly reduce bacterial adhesion and biofilm formation without the use of active antimicrobials.

LOWER COEFFICIENT OF FRICTION

Medical devices inserted into the vasculature, urogenital tract, or tissues, require low friction surfaces to ensure minimal tissue trauma during insertion, maneuverability to the treatment site, and patient comfort. Low-profile interventional devices for minimally-invasive procedures additionally require movement between a variety of component materials. Endexo® additives can reduce surface friction and eliminate the need for friction reducing liners or coatings.

CONTACT US
healthcare@evonik.com

Coefficient of Friction on Endexo®-modified prototypes



EVONIK
Leading Beyond Chemistry

Evonik Operations GmbH
Health Care Business Line
Drug Delivery & Medical Device Solutions

healthcare@evonik.com
evonik.com/healthcare