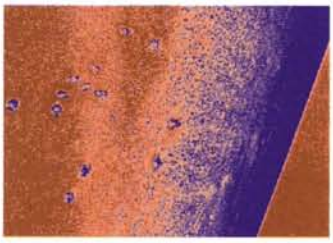
X Coating™

FOR TERUMO® PERFUSION PRODUCTS

An amphiphilic, biopassive polymer coating to reduce protein denaturation and platelet adhesion.



TERUMO
Cardiovascular Systems

Xcoating™

An amphiphilic, biopassive polymer coating to reduce protein denaturation and platelet adhesion.

What is X Coating?

biopassive and amphiphilic

X Coating is composed of an amphiphilic polymer, which means that it has both hydrophobic and hydrophilic properties. It is the dual properties of X Coating, working in tandem, that allow it to adhere to a variety of different device materials in the extracorporeal circuit and form a new surface that reduces protein denaturation and platelet adhesion.

X Coating is biopassive and will not react with blood components. And because it is not heparin-based, it can be used with heparin-intolerant patients.

How does X Coating work?

reduces protein denaturation and platelet adhesion

X Coating can be applied to virtually all device material surfaces, including polypropylene, polycarbonate, polyurethane, stainless steel, filter mesh, and PVC.

During application, the X Coating molecules bind to each other as well as to the surface material, forming a *very thin, very supple layer.* The nature of the attachments between the molecules and the surface allows the X Coating layer to maintain its elasticity; it conforms to even the most flexible surfaces, like tubing, without any clinically significant leaching. Therefore, X Coating has no contraindications for patient size.

While X Coating is hydrophobic where it contacts the device, its blood contact surface is hydrophilic (see illustration, above). Water in the blood collects at the coating's hydrophilic interface, causing the coating to swell and create a molecular "mesh" or "net." Protein molecules associate freely within this watery layer; they maintain their native conformation as they move between the boundary layer and the bloodstream, just as they would in normal circulation.

Thus, during extracorporeal circulation, X Coating functions by creating a boundary layer, composed of water and the patient's native protein, over the surface of the device. Because the proteins do not deform, or become denatured, in this layer, platelets will not adhere to the surface. In an uncoated circuit, protein molecules that contact the device surface lose their conformation, or become denatured, creating conditions that promote platelet aggregation.

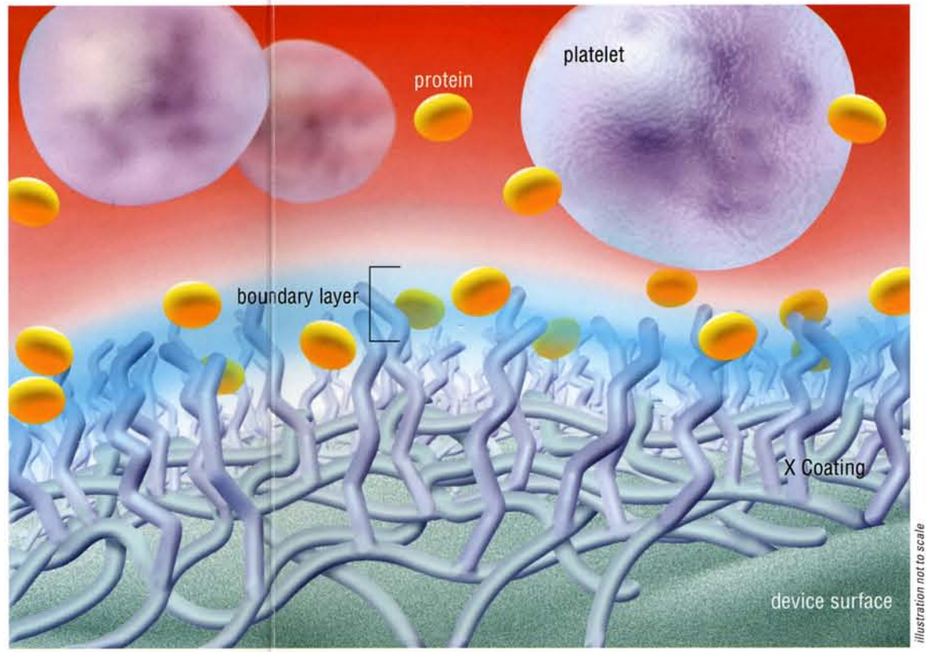
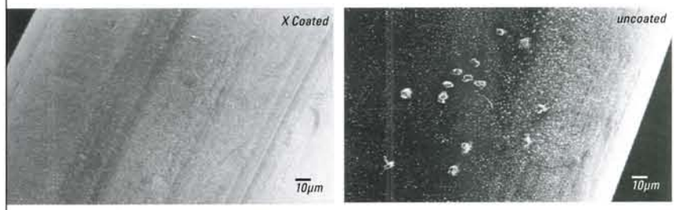
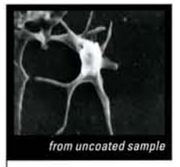
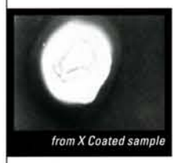


illustration not to scale



Fiber surfaces, X Coated and uncoated, shown after four hours of ex vivo recirculation with porcine blood. The uncoated surface shows emboli aggregation.

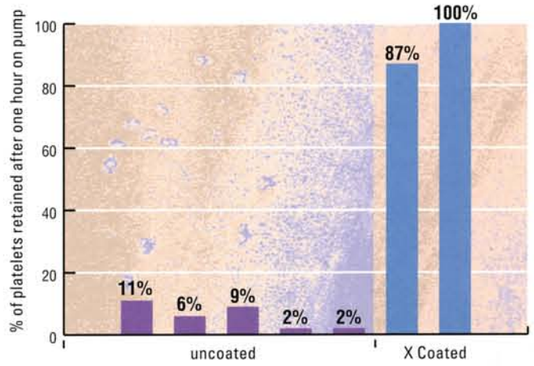




Washed platelets after interaction with X Coated and non-coated membranes. The platelet from the uncoated membrane is activated.

Why use X Coating?

Platelet Count (% of T=0)



Platelet retention after one hour of in vitro circulation with human blood: Comparison between X Coated extracorporeal circuits and (competitive) uncoated circuits. Circulating blood in X Coated circuits retained significantly more platelets than uncoated circuits.[1]

1 Source: Terumo Corporation, Shonan Center. Kanagawa Pref., Japan.

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CAPIOX® Sarns™ CDI™

X Coating™ for CAPIOX® and Sarns™ perfusion circuit products

Xcoating™

The application of X Coating does not affect the gas transfer performance of CAPIOX® SX Oxygenators. Another reason to put a CAPIOX SX Oxygenator — with X Coating — at the heart of your perfusion circuit.

CAPIOX SX25R

CAPIOX SX Oxygenators are arguably the most carefully manufactured and rigorously inspected oxygenators available. We manufacture our own fiber, mold our own components, test and record the gas transfer characteristics of every oxygenator, and perform integrity tests on every oxygenator, reservoir, sampling line, and heat exchanger. And those are just a few of the more than 30 inspections we perform on every CAPIOX SX Oxygenator. Which explains why CAPIOX SX Oxygenators deliver uncompromisingly consistent performance.

Case after case.

(After case. After case. After...)

Count on CAPIOX.

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