

LNXOR



LNXOR^{Au}

SEM COATING

Made smart and easy



SEM COATING

Made smart and easy

At LUXOR, we believe that the best and most reliable metal coating for electron microscope applications can be done differently. With smart technology and innovative design.

Innovation and smart design should be accessible for every user. That is why we build a series of highly advanced, fully automated metal coaters meant for high-resolution imaging and microanalysis.

Our customers can therefore expect faultless, uninterrupted operation as well as fast and consistent results.

Our mission is to make SEM coating smart and easy. For every user.

LUXOR



WHO WE ARE

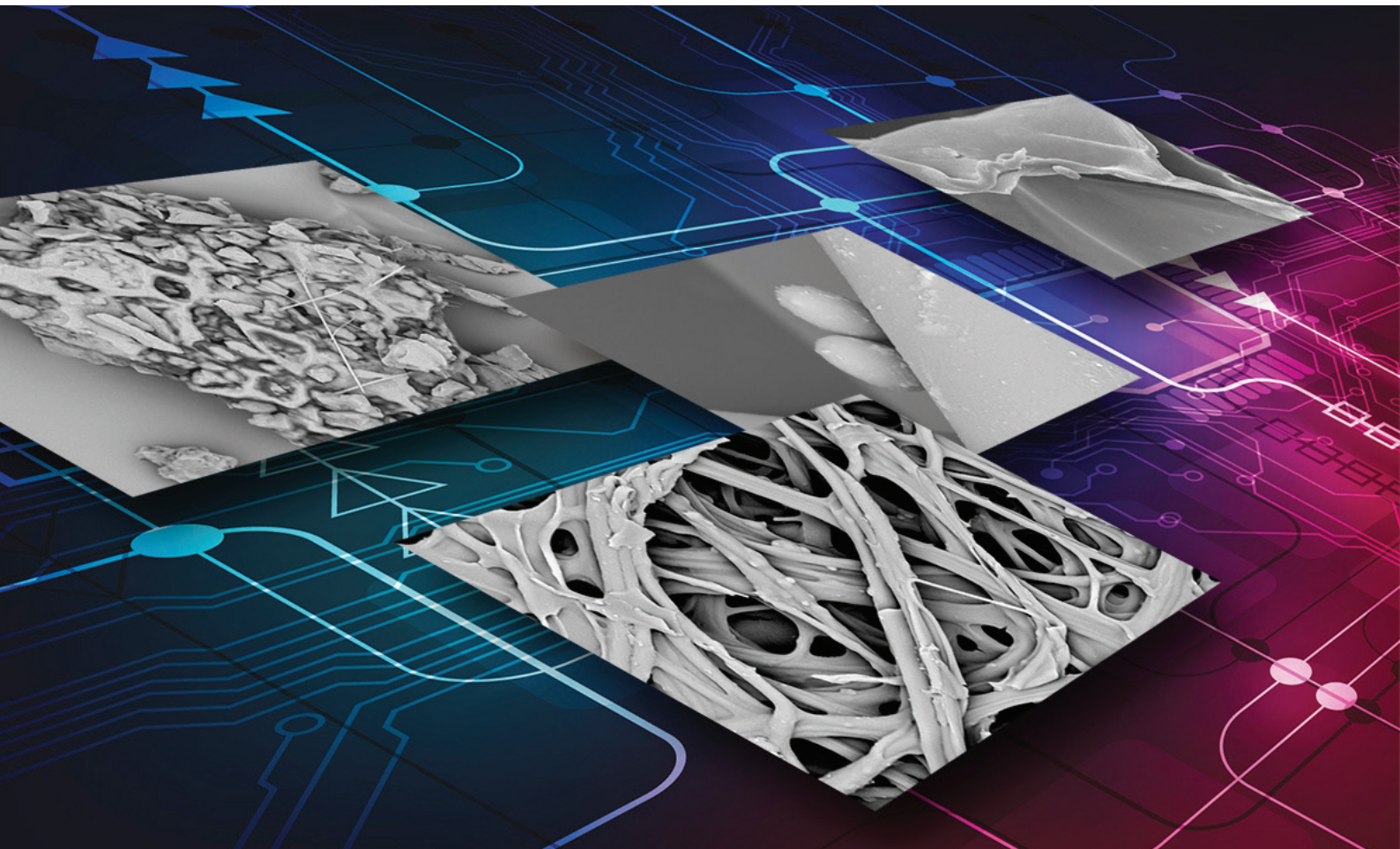
LUXOR is a brand of Aptco Technologies, a manufacturer of measurement instruments and testing equipment for academic and industrial QC and research labs.

The LUXOR sputter devices are designed and manufactured in-house by our engineering and production department in Germany. Together with a dedicated team of distributors, we are close to our customers all over the world.

WHY LUXOR METAL COATERS

LUXOR's unique A² technology generates a plasma and applies it in a controlled and accurate manner. This results in an extremely uniform, thin and homogeneous gold or platinum layer on your non-conductive material.

The LUXOR^{Au} coaters are renowned for their speedy operation and ease of use. They ensure high-quality SEM images when working with challenging samples such as beam sensitive and non-conductive materials.





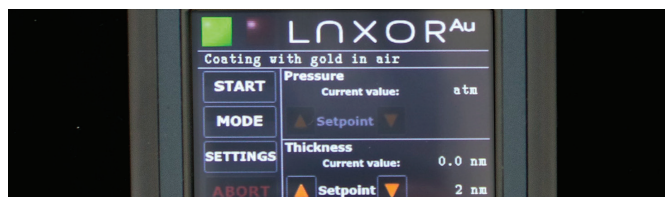
UPSIDE DOWN DESIGN

LUXOR metal coaters, the samples are mounted upside down. While this might seem a little controversial at first sight, it is actually a consequence of our 'form follows function' approach.

The upside down concept brings many advantages. First, all high voltage and high current wires are safely hidden within the sputter device. This obviously greatly reduces the risk of electric shocks.

Next, the sample loading station is easily accessible and allows to apply or remove the samples without the need for special tongs or tweezers. This doesn't just make everyday use easier, but also speeds up productivity.

The upside design makes sure that loose particles will be removed during the coating process. This way, your SEM is optimally protected.



FULLY AUTOMATED

The coating process is fully automated. As soon as your samples are loaded into the preparation station, you only have to choose the desired coating thickness and push the start button.

Thanks to this user friendly process, the chance of human errors is significantly reduced. Furthermore, this means that untrained operators and lab personnel can operate the device.

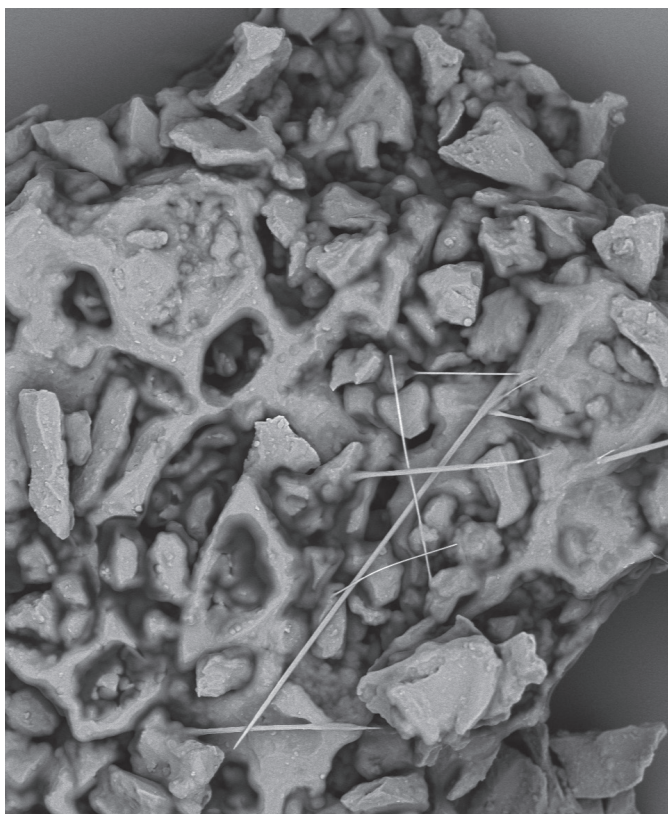
BENEFITS OF METAL COATING

- Reduced microscope beam damage
- Increased thermal conduction
- Reduced sample charging (increased conduction)
- Improved secondary electron emission
- Reduced beam penetration with improved edge resolution
- Protects beam sensitive specimens

A² TECHNOLOGY

LUXOR's unique A² Technology generates a metal plasma and applies it in a controlled and accurate manner, resulting in an extremely uniform, thin and homogeneous gold layer. This is achieved by creating a vacuum in the process chamber, after which a high voltage is applied. Next, the coating current is automatically regulated by adding small amounts of process gas into the reactor, until the set target current is reached and stabilised.

The unique way this process is controlled and adjusted is what distinguishes the LUXOR metal coaters from other commercially available instruments. For the SEM operator this means more homogeneous metal coatings, resulting in high resolution and high contrast images and a worry-free coating process without any manual intervention.





LUXOR^{Au}

The LUXOR^{Au} is an advanced, fully automated sputtering device that applies a fine grain gold coating from 1 to 100 nm thickness. This allows you to get the very best SEM imaging quality from your samples.

LUXOR's unique A² technology generates a gold plasma and sprays it in a controlled and accurate manner, resulting in an extremely uniform, thin and homogeneous gold layer.

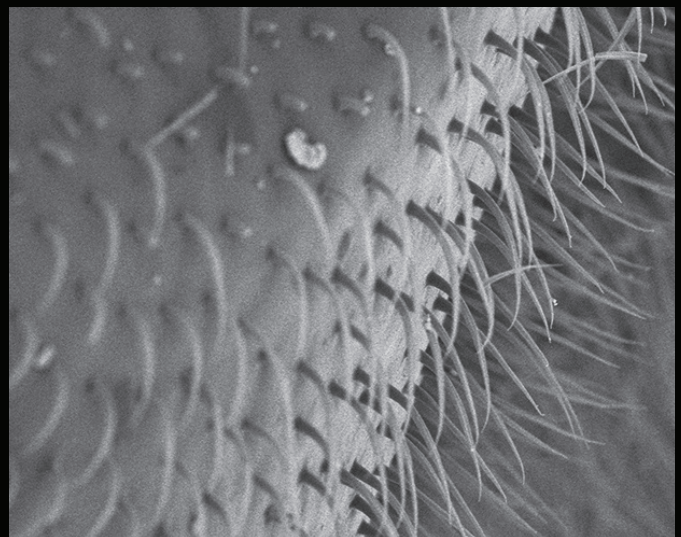
The LUXOR^{Au} is also renowned for its ease of use and quick, hassle-free operation.

TECHNOLOGY

The LUXOR^{Au} is typically used for SEM imaging applications up to 100.000x magnification where sample charging might be an issue, as the coating strongly reduces sample charging by increasing conduction.

The coater is designed to improve secondary electron emission. As a result, the microscope's detectors will pick up more hi-res imaging details.

Another advantage is the reduced beam penetration, which significantly improves edge resolution. Furthermore, this prevents sensitive samples from being damaged.



BENEFITS



SUPERIOR GOLD COATING RESOLUTION

Field tests clearly show that the LUXOR^{AU} generates more homogeneous gold coatings compared to other coating instruments in the market. Furthermore, the A² technology ensures identical coating results, day after day and year after year.

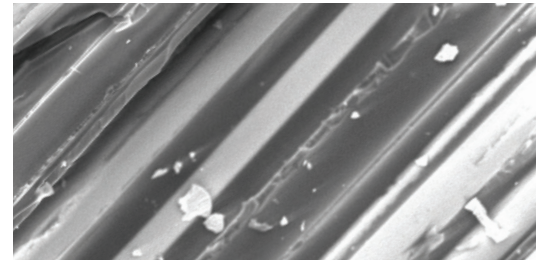


IMAGE A

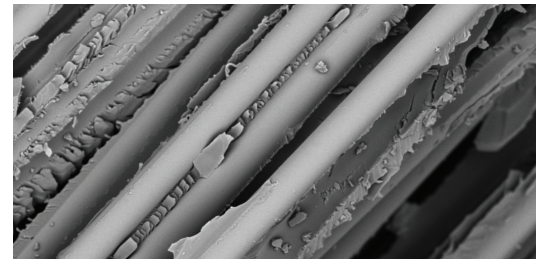


IMAGE B



OPTIMISED USER INTERFACE

The LUXOR^{AU} is remarkably easy to use. Using the built-in touchscreen, the coating process can be initiated with just a few clicks. This helps to reduce the risk of human errors while improving efficiency.



INCREASED SPEED & EFFICIENCY

The LUXOR^{AU} coater is able to process up to six samples in one go. And even though the gold coating layer is applied in a very precise manner, the procedure is fairly quick. This enables you to maximise productivity.



IMPROVED SAFETY MEASURES

The sample preparation station has a double layered borosilicate glass and PET shield, offering excellent protection and safe operation. In addition, no high-voltage cables are used outside the cabinet.



ADVANCED SEM PROTECTION

The unique 'upside down' design of the LUXOR^{AU} makes sure that loose particles will be removed during the coating process. This way, your SEM is optimally protected.



TRIPLE FUNCTIONALITY

The LUXOR^{AU} is more than just a gold coater. It also offers a preset vacuum level mode to protect sensitive samples and provides a time-based sample drying mode.



EASY ACCESS SAMPLE STATION

The LUXOR^{AU} is designed in such a way that samples can quickly and easily be mounted and removed from the sample preparation station. Fiddling with special tongs to insert samples is no longer necessary.



ROBUST DESIGN, MADE IN GERMANY

Despite its modest footprint and elegant appearance, the LUXOR^{AU} is a robust, sturdy device. It is designed to be used intensively and run hassle-free for many years.

SUPERIOR GOLD COATING RESOLUTION

The pictures above show a 1.000x magnification of a glass fiber sample without (IMAGE A) and with (IMAGE B) gold coating



FEATURES AND SPECIFICATIONS

- Au coating in air or argon
 - Maximum capacity: 6 samples
 - Average coating time: 6 minutes
 - Additional vacuum & drying modes
 - Low energy dual stage pump
-
- Vacuum & drying modes 7 Pa to 150 Pa (continuously selectable)
 - Gold layer thickness 1 to 100 nm (continuously selectable)
 - Process time 1 to 600 minutes (continuously selectable)
 - Process chamber Borosilicate glass Ø 100 mm x 150 mm height
 - Implosion shield PET Ø 120 mm x 150 mm height
 - Vacuum connector DN 16 KF
 - Process gas connector 4 x 1 mm
 - Process gas supply Air or argon (0,6 bar)
 - Operating voltage 110 – 240 V AC, 50/60 Hz
 - Dimensions 340 x 340 x 290 (mm, W x D x H)
 - Weight 11 kg
 - Supplied accessories 1x gold target Ø 30 mm, thickness 100 µm (99,999% purity), international power plug set, printed user manual

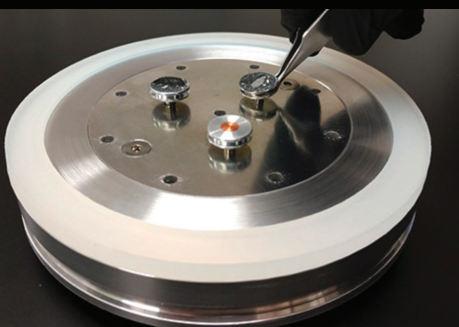
DUAL STAGE VACUUM PUMP

- Can be ordered separately as “pump kit” including
- Two-stage roughing-pump with a pump capacity of 4.8 m³/h
- Metal vacuum hose, DN 16 KF, length 1 m
- 2 x fittings and 2 x seals DN 16 KF
- 1 x oil mist filter



ACCESSORIES

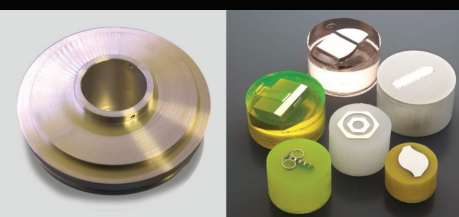
We are constantly on the lookout to develop new accessories that cover special applications. If you have some ideas about new accessories or functionalities that you would like to see implemented on our products, please do not hesitate to share them with us.



STANDARD SAMPLE PREPARATION STATION

The LUXOR standard sample preparation station is delivered as a standard accessory with every LUXOR^{Au} or LUXOR^{Pt} metal coater.

It can simultaneously hold up to 6 x 12 mm sample stubs for metal coating. It is an easily accessible sample preparation table with 3 elastomer feet that also acts as the lid for the coating reactor.



SAMPLE HOLDER FOR MOUNTED/EMBEDDED SAMPLES

The LUXOR sample holder for mounted/embedded samples can hold all types of samples that are mounted or embedded into resins with diameter ranging from 25 mm to 40 mm and height from 10 mm to 50 mm.



LUXOR GOLD TARGET

Gold target \varnothing 30 mm, thickness 100 μ m (99,999% purity) for use with both LUXOR^{Au} and LUXOR^{Pt}

MARKETS AND APPLICATIONS

LUXOR's highly advanced metal coaters (Au/Pt) are extensively used for many applications within the field of materials science – such as pharma, life science, electronics, polymers, ceramics, as well as for academic purposes.

MATERIALS SCIENCE

Materials science comprises many different branches and covers a wide range of materials like polymers, filters, metals, pharma, textiles, coatings, ceramics, life science applications, electronics, and so on.

The LUXOR^{Au} and LUXOR^{Pt} metal coaters are widely used for all of these applications, particularly for electron microscopy (SEM and FEG-SEM) purposes where sample charging might be an issue and when working with beam sensitive materials.

The list of materials science applications ranges from particle characterization, analysis of the micromechanics of composites, visualizing the morphology of plastics, root cause analysis of different materials etc.

Today's materials science labs have become a central hub for product development, solving customer issues and high level quality control applications. Despite a wide diversity of incoming materials and their related



issues, reproducible and user friendly testing methods have to be readily available and accessible to operators who only have a limited knowledge of the equipment. Moreover speedy and high throughput solutions are crucial to cope with the everyday work.

This is why the LUXOR fully automated metal coater fits perfectly in every lab.

ACADEMIC APPLICATIONS

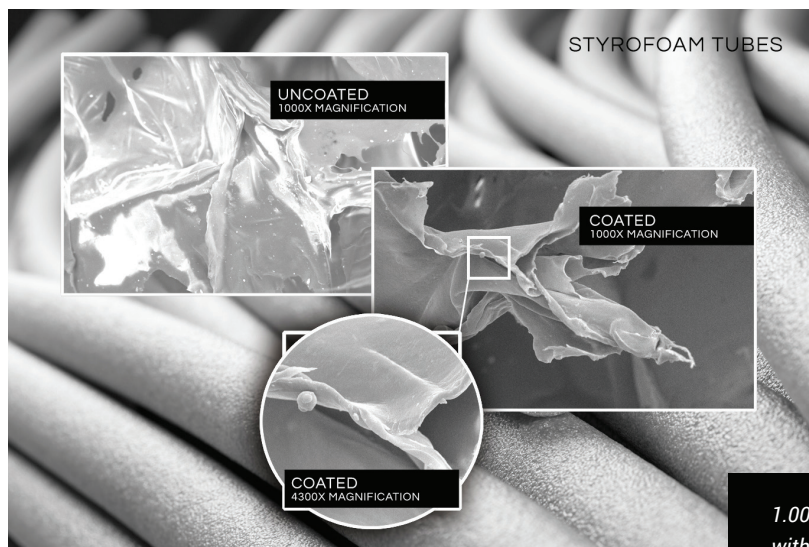
Working properly with a SEM or FEG-SEM microscope demands – amongst other things – for extensive knowledge about sample preparation.

To this end, the leading scientists of tomorrow learn how to work with LUXOR coaters in universities all over the world.

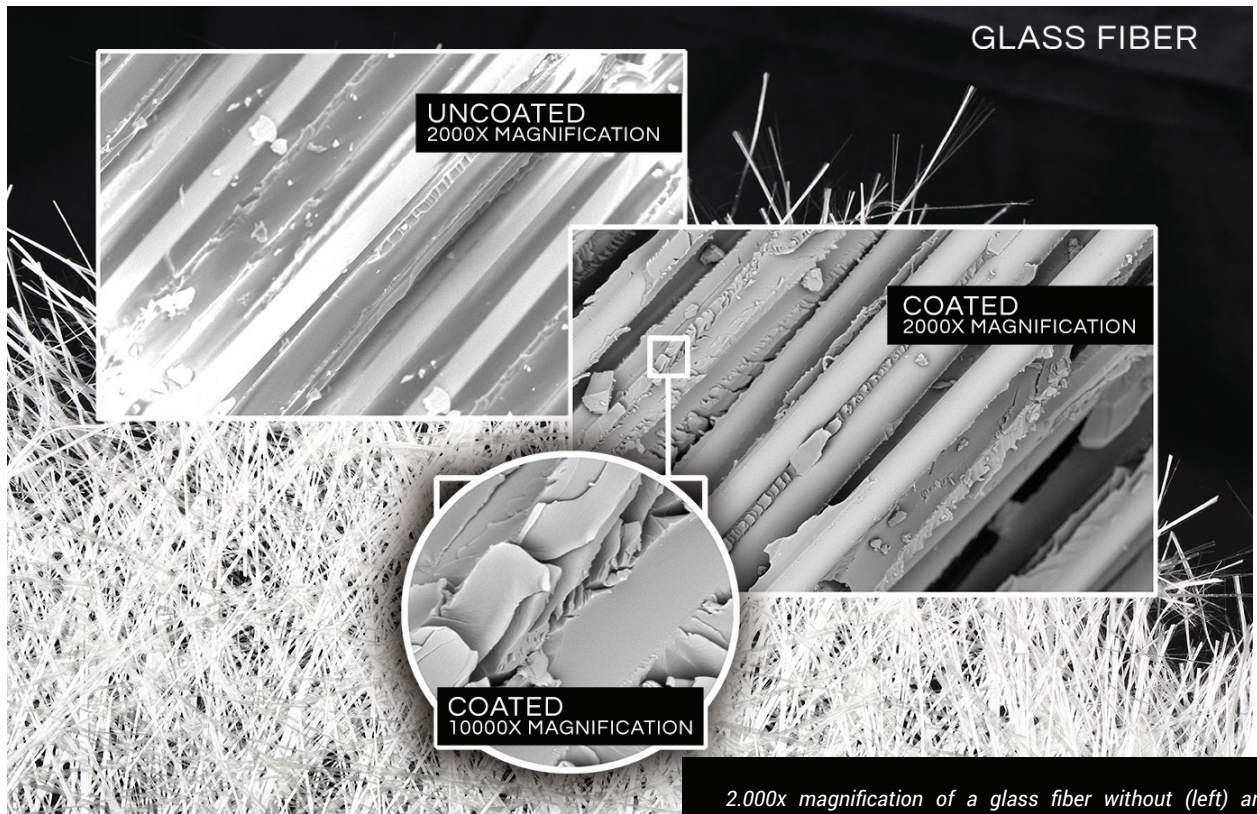
The LUXOR^{Au} and LUXOR^{Pt} metal coaters can cope with a wide diversity of sample materials and are therefore particularly suitable for academic applications.

In a university setting, many different operators, ranging from students to senior researchers are using SEM technology and related sample preparation techniques such as sputter coating on a daily basis. There is also the wide diversity of specimens and materials for which a reliable sample preparation technique is essential.

Thanks to the fully automated operation and the optimised user interface of the LUXOR coater, the chance of human errors is minimal.



1.000x magnification of a styrofoam tube without (left) and with (right) gold coating applied and a detail of the gold coated styrofoam tube at 4.300x magnification



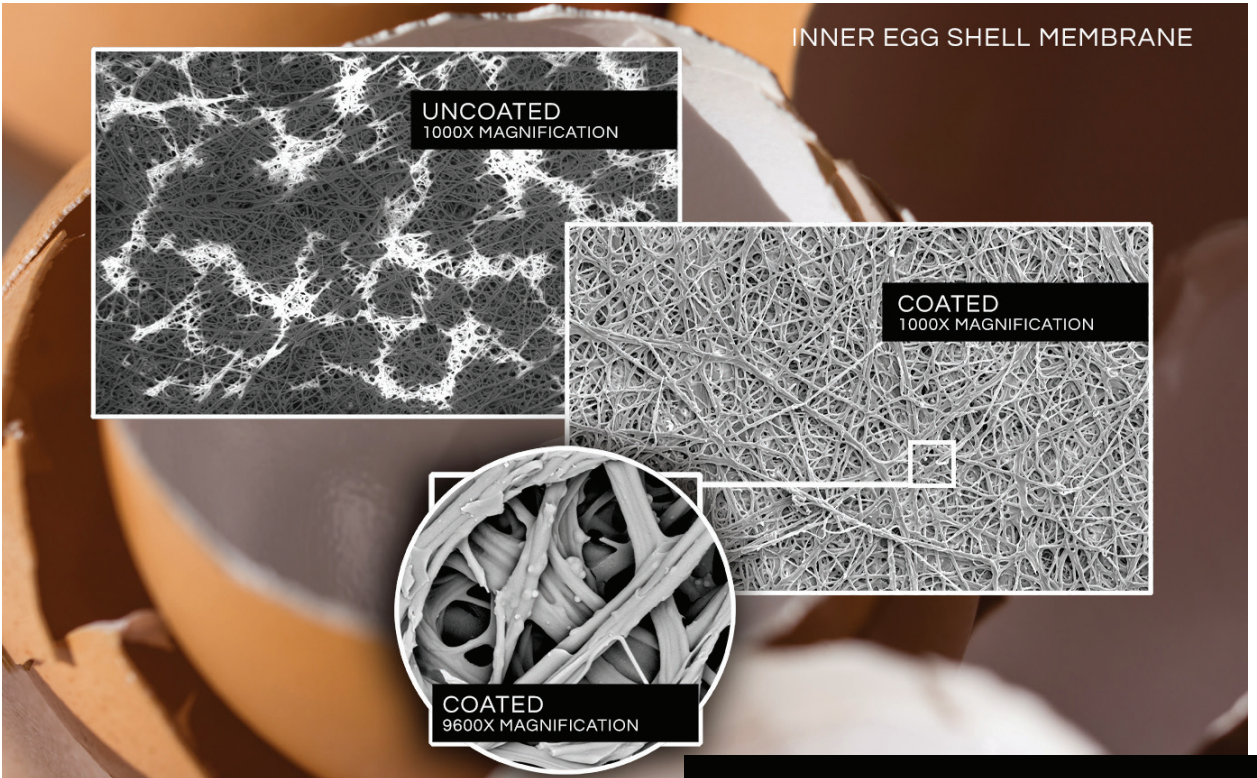
GLASS FIBER

UNCOATED
2000X MAGNIFICATION

COATED
2000X MAGNIFICATION

COATED
10000X MAGNIFICATION

2.000x magnification of a glass fiber without (left) and with (right) gold coating applied and a detail of a glass fiber at 10.000x magnification.



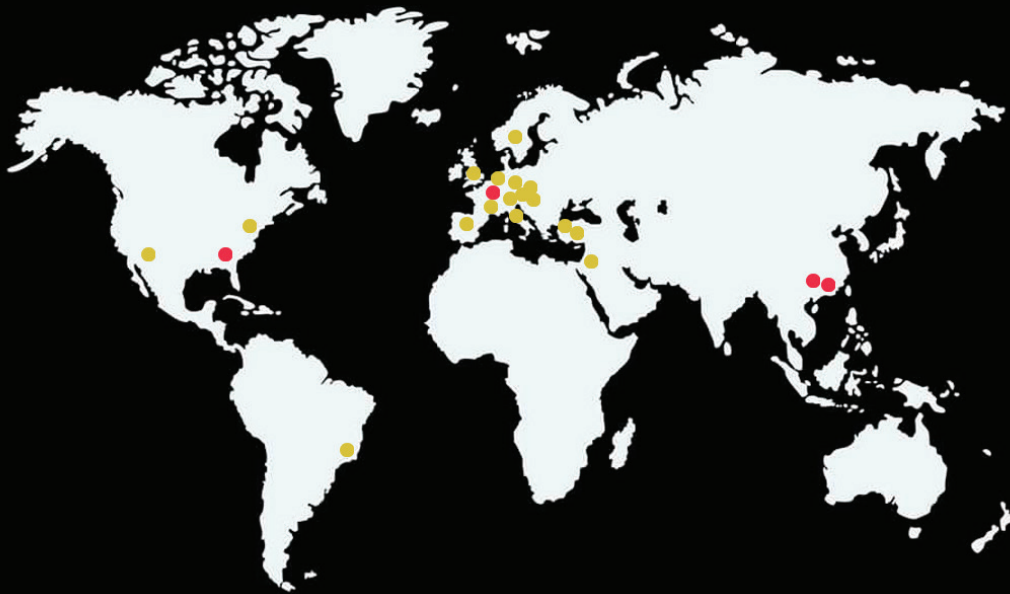
INNER EGG SHELL MEMBRANE

UNCOATED
1000X MAGNIFICATION

COATED
1000X MAGNIFICATION

COATED
9600X MAGNIFICATION

1.000x magnification of the inner membrane of an egg shell without (left) and with (right) gold coating applied and a detail of the gold coated membrane gold at 9.600x magnification



● LUXOR Sales Offices ● Distributors

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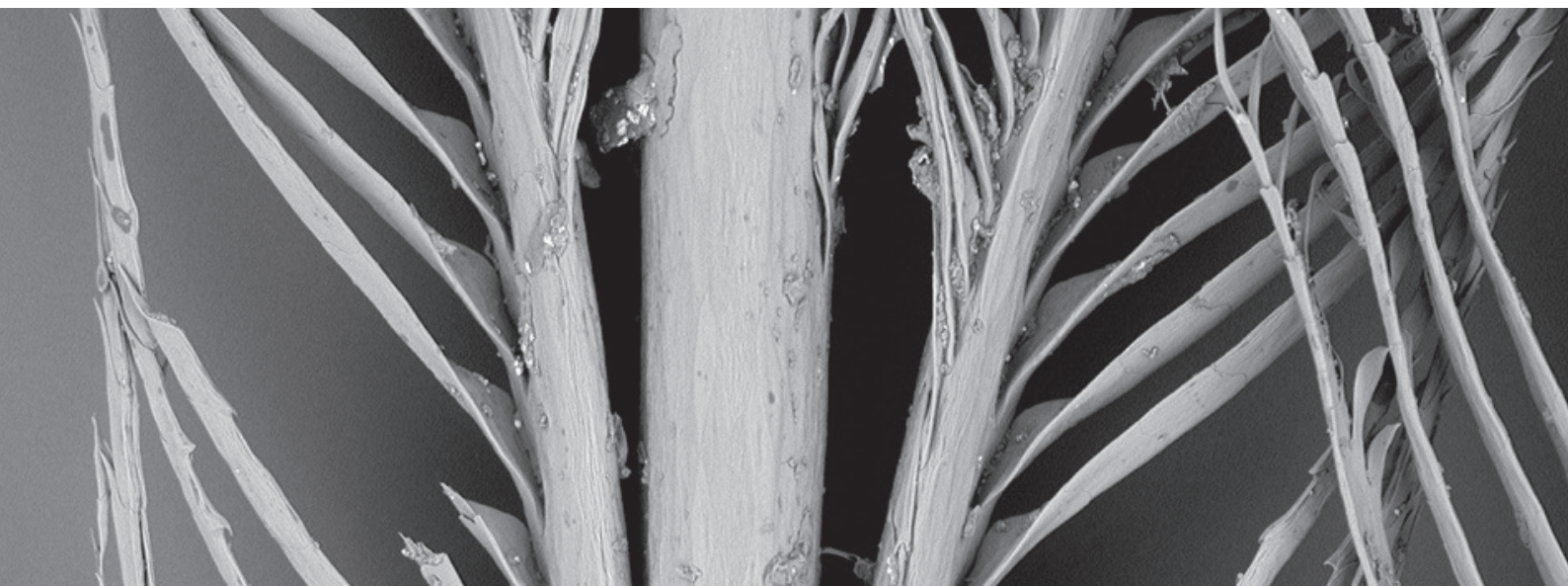
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