Oxygen-free at Its Best
Foxrod production

**Raw materials**
Concentrates and recycling materials are the raw materials from which copper is produced.

**Products**
The copper is processed into products. Some products are already the result of copper production.

**Service Centres**
Service Centres located near our customers cut strips to the desired dimensions.

**Sales and distribution**
An international sales and distribution network markets our products.

**Trade**
Trading sites serve to supply our plants with recycling raw materials.
The Aurubis Group combines copper smelting and refining with copper processing activities to create a broad range of products and custom-made solutions. The company was founded as a stock corporation back in 1866 and has successfully positioned itself ever since. Today Aurubis is the leading integrated copper producer with approximately 6,300 employees across 18 production sites in Europe and the USA and an extensive service and sales system for copper products in Europe, Asia and North America. The Aurubis Group is synonymous with innovation, a competitive technological edge and exemplary environmental conservation. Aurubis is the world’s largest copper recycler.

CATHODES WITH 99.995 % COPPER CONTENT
AURUBIS FOXROD production is located in our facility in Olen, Belgium. It is supplied with outstandingly pure copper cathodes produced on site. Aurubis Olen runs a large tankhouse – the last step in the copper refining process. In this plant, copper anodes are transformed into cathodes with a copper content of 99.995 %.

These high-purity copper cathode sheets have outstanding electrical, mechanical and chemical properties and are the perfect starting material for further processing. They are traded on metal exchanges around the world and used in our own production, including that of AURUBIS FOXROD.

COPPER PRODUCTS OF THE HIGHEST PURITY
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Facts & Figures

FOXROD

1996 • is the year Aurubis started its Foxrod production as a pioneer in the sector.

99.995 % • is the minimum copper content of our own cathodes that are used as a base material for our Foxrod.

0 % • is the oxygen content of our Foxrod.

2 to 5 tonnes • is the weight range of our Foxrod coils.

8 to 32 mm • is the diameter range of our Foxrod coils.

Wired to the world of copper
32,000 TONNES OF AURUBIS FOXROD PER YEAR

Aurubis Olen started producing FOXROD back in 1996. Four state-of-the-art installations for producing FOXROD are currently running. Each of the four units produces wire rod using state-of-the-art continuous vertical upward casting.

They operate several drawing dies that can be set at various speeds and diameters. The rod is cast directly into the right diameter. All four of the installations are equipped with state-of-the-art computer control and monitoring systems, ensuring an excellent and homogenous product quality.

Glowing passion
ANODE CLIPPINGS FOR PLATING
The AURUBIS FOXROD casting process can efficiently produce small quantities of anode clippings with tailor-made diameters and alloys. Its many qualities make it the perfect base material for a wide variety of applications.

The same characteristics that make AURUBIS FOXROD a perfect base material for wiring and profiles are often also required for achieving the best quality in copper plating applications:

» Homogenous material
» Various dimensions
» Clean metallic surface
» Close to zero oxygen content
» High electrical conductivity

Stringent quality inspections in our laboratories provide you with additional proof of these excellent material properties. Upon request, we can produce special FOXROD alloys to achieve particular properties.

QUALITY ASSURANCE
Our quality management system guarantees that the production and distribution of FOXROD is in accordance to DIN, EN and ASTM standards. Prior to delivery, each coil is subjected to an extensive and stringent quality inspection in our metallographic and chemical laboratories. Among other values, we measure:

» Hydrogen resistance
» Conductivity
» Oxygen content
» Chemical composition

The key results are documented in test reports or, upon request, by inspection certificates. Samples of each coil are stored for potential subsequent inspections.

TYPICAL ANALYSIS RESULTS OF UNALLOYED OF-1 FOXROD (PPM)

<table>
<thead>
<tr>
<th>Element</th>
<th>ppm</th>
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<tbody>
<tr>
<td>Ag</td>
<td>10</td>
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<tr>
<td>As</td>
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<tr>
<td>Bi</td>
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<td>Cd</td>
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<tr>
<td>Co</td>
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<tr>
<td>Zn</td>
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FOXROD FOR BARS AND PROFILES

AURUBIS FOXROD is perfectly fitted to continuous extrusion applications thanks to its ultra clean metallic surface free of organic elements. It is available in various diameters up to 32 mm.

The highest priority is given to purity standards throughout the FOXROD manufacturing process. Each and every possible measure is taken to avoid any oxidation of the rod. Furnaces and casting dies are made out of copper-repulsive, chemically inert materials to avoid any possible contamination. The rod can be produced without any protective wax if required for the final application.

As a result, our FOXROD presents an extra clean metallic surface with less than 3 ppm of organic components. Rigorous quality control before shipment, executed in our well-equipped laboratories, provides our customers with additional guarantees of the rod’s purity.

FOXROD FOR WIRE DRAWING

AURUBIS FOXROD combines < 5 ppm oxygen content with high electrical conductivity. Moreover, it is free of impurities. Those characteristics make AURUBIS FOXROD an excellent starting product for processing all types of copper wire, in particular extra fine wires.

For wires to be used in fire-proof cables or in environments containing hydrogen, the copper has to be oxygen-free to avoid any risk of hydrogen embrittlement.

High copper purity is also required for the production of very fine wires. When drawing wires in the micron range, any small impurity can lead to fatal breakage.

Upon request, Aurubis can produce special FOXROD alloys for particular applications, e.g. to achieve the highest tensile strengths. The total quantity of alloying elements can reach up to 2 %. Frequently produced qualities and alloys include Cu-OF1, Cu-OFE, CuAg, CuSn, CuFeP, CuMg, CuMgP and CuTeP, among others. This alloyed FOXROD can be produced in small quantities.

The casting dies used during the AURUBIS FOXROD manufacturing process immediately create the desired rod diameter for bars and profiles, typically between 12.5 and 25 mm.
Before, during and of course also after purchase, Aurubis offers its customers comprehensive commercial and technical services, geared entirely to the needs of our customers.

Outstanding Service

BUYING AURUBIS FOXROD OFFERS THE ADVANTAGES OF OUR WELL-DEVELOPED AND FAR-REACHING CUSTOMER SERVICE:

» JUST-IN-TIME DELIVERY
Short and reliable lead times with a stable product quality, thanks to our Supply Chain Concept.

» FINANCIAL GUARANTEES
Aurubis is a strong and financially healthy long-term copper supplier. We offer customised hedging solutions with full pricing transparency.

» FOCUSED BUSINESS RELATIONS
We have a clear and unambiguous business model focusing on semi-finished copper products, while maintaining professional and transparent long-term relationships with resellers, subcontractors and machining companies.

» PRODUCT DEVELOPMENT AND QUALITY MEASUREMENTS
Our extensive expertise and laboratory equipment is at your service. We can offer you a broad spectrum of metallurgical measurements and chemical analyses.