

Issue 39/2024

umicore

umicore goldpost

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We will be in **Stuttgart** at the Surface Technology Germany in June 2024. This is one of the most important trade fairs for electroplating industry.

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On our website www.mds.umicore.com the Goldpost is available for download as a PDF file in the download section.



Dear readers,

I would like to invite you to look back on the past year with our new Goldpost issue.

A lot has happened again in 2023. First and foremost, of course, the expansion of our PLATUNA® product family. In addition to innovations, we also celebrated the anniversary of our AURUNA® 311. The process has now been established on the market for 40 years and is still a permanent fixture today.

We would also like to take a look behind the scenes and share internal changes with you. In summer 2023, for example, our long-time Managing Director Thomas Engert was sent into retirement at a staff party.

I hope you enjoy browsing through and reading the new issue of Goldpost!

Your

Michael Herkommer
Managing Director

Umicore Inside - News overview



As part of the summer party in July, long-serving Managing Director **Thomas Engert** took his well-deserved retirement. Of course, Umicore colleagues and representatives from the city of Schwaebisch Gmuend and the Ostalbkreis district office were not going to miss this.



Detailed information at:
mds.umicore.com/farewell-thomas-engert

Umicore apprentice **Mika Jost** achieved 96 points in his final examination as a surface coater and was thus named the best examinee in Germany in this apprenticeship in 2023. This success has now been honored at a ceremony held by the Chamber of Industry and Commerce.



Detailed information at:
mds.umicore.com/best-surface-coater



In 2023, we again supported both international and regional projects with **over 37,000 euros in donations**. For example, donations were made to the German Red Cross for the earthquake victims in Turkey and the local knowledge workshop Gmuender Eule.



Detailed information at:
mds.umicore.com/end-of-year-2023



Our Electroplating business line is changing its sales partner in Italy as of January 1, 2024. The new partner will be **Valmet Plating**, a leading provider of surface treatments in Italy. At the same time, the cooperation with the previous partner Italbras was finished at the end of 2023.



Detailed information at:
mds.umicore.com/valmet-en

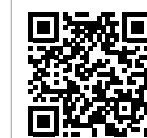
Since May 1, 2023, we have taken over the previous **rhodium business from Wieland Edelmetalle**, which has decided to discontinue this product area.



Detailed information at:
mds.umicore.com/newsletter-06-2023-en



In 2023, Umicore maintained its overall **EcoVadis** social responsibility score of 75/100 from 2022, although the bar was raised in the individual areas. This still puts us in the top 2 percent of rated companies worldwide.



Detailed information at:
mds.umicore.com/ecovadis-2023-en



Modern platinum layers for a sustainable future.

New benchmark for platinum coating of technical applications

Modern platinum layers for a sustainable future

Electroplating technology has a new benchmark for coating with pure platinum: PLATUNA® PT. The electrolyte enables the deposition of exceptionally thick and at the same time very homogeneous and absolutely crack-free platinum layers.

Coatings with PLATUNA® PT are convincing in almost all technical applications. Whether as a visually appealing, high-gloss top layer or as a functional intermediate and final layer.

Catalyst in electrolyzers

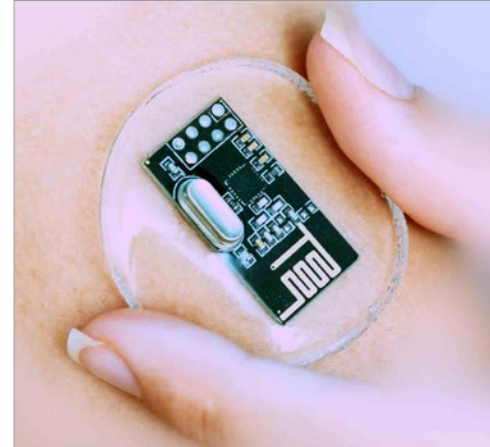
PLATUNA® PT coatings are suitable for a wide range of technical applications, e.g. as a catalyst in electrolyzers for hydrogen production: Platinum accelerates the hydrogen evolution reaction at the cathode and reduces the amount of energy required for the reaction. PLATUNA® PT can be deposited directly onto the carrier material (ideally titanium or nickel) and produces a very thin and homogeneous platinum layer.

Sensor in the medical environment

Platinum is also ideally suited as a surface material in medical sensors, as it is biocompatible, corrosion-resistant and electrically conductive. PLATUNA® PT coatings are therefore used on electrodes, catalysts or receptors in various sensors such as ECG, glucose, oxygen or pH sensors.

Contacts in connectors

Electrical contact surfaces, for example in connectors, also benefit from this. The platinum layer reduces the contact resistance between the contacts and increases corrosion and abrasion resistance. PLATUNA® PT can thus improve the performance and service life of electronic, industrial and automotive plug contacts.



Coatings with PLATUNA® PT are convincing in almost all technical application fields.



Detailed information at:
mds.umicore.com/platuna-pt-technical





Three new platinum (alloy) electrolytes in the spotlight

Bright coatings with the new PLATUNA® electrolytes

PLATUNA® PT is not only suitable for technical applications, but is also one of three new electrolytes for perfect, bright platinum coatings. Unlike conventional electrolytes, which often have a yellow tint, our platinum electrolytes are immaculately white and ensure a perfect appearance.

Our new platinum electrolytes are the key to a perfect coating.

Furthermore, the electrolytes are easier to handle and more gentle on the coated material. The current-independent deposition speed enables a uniform coating thickness distribution, which leads to a higher quality of the coating.

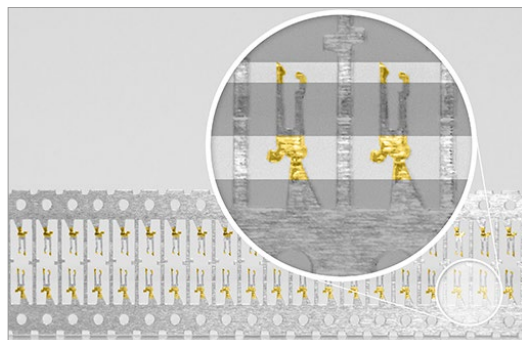
- **PLATUNA® PT:** Crack-free up to 5 µm
- **PLATUNA® Alloy RH:** Cost-effective alternative to pure rhodium with almost the same color
- **PLATUNA® Alloy RU:** Cost-saving alternative to pure platinum with a higher hardness



Detailed information at:
mds.umicore.com/spotlight-en



Optionally inhibitor additive allows up to 15% gold savings



Up to 15% gold savings are possible through sharp edging.

AURUNA® 8100 (AuCo) and AURUNA® 8400 (AuNi) are proven systems developed for high speed gold plating in selective plating lines and continuous reel-to-reel systems. Even with strong electrolyte movement (flow, gating) and high current densities, the processes show stable long-term behavior.

The optional use of AURUNA® Inhibitor 2 offers the possibility of reduced gold consumption of up to 15%. The inhibitor results in sharp edge delineations - thus reducing the run-out zone width.

AURUNA® Inhibitor 2 is not incorporated into the layer

"Importantly, the layer properties of the process are maintained at all times. AURUNA® Inhibitor 2 is electrochemically active in the electrolyte, but it is not incorporated into the layers," explains our Division Manager for Technical Applications, Benjamin Wieser.



Detailed information at:
mds.umicore.com/inhibitor-additive



Wear-resistant palladium-nickel coatings with PALLUNA® 4700

Our PALLUNA® 4700 is a newly developed high-speed electrolyte for cost-optimized deposition of a hard and wear-resistant palladium-nickel alloy with excellent corrosion resistance.

Depending on the operating conditions, the electrolyte deposits alloy layers with approx. 80% Pd. The alloy composition is largely independent of the current density.

The semi-bright to bright coatings are suitable for cross-industry applications, and initial references in the industrial and IT connector sectors confirm the absolutely robust and technologically outstanding new electrolyte system.



Due to its hard and corrosion-resistant layers, PALLUNA® 4700 is particularly suitable for IT and industrial connectors.



Detailed information at:
mds.umicore.com/palluna-4700-en



Abrasion resistant like no other bright white rhodium coating

Still the bright queen among rhodium electrolytes

Umicore's RHODUNA® Alloy has earned the title "the bright queen" due to its superiority over other rhodium coatings on the market. In addition to its brilliant white final layer, it not only has all the benefits of pure rhodium layers - it also 'shines' with a clear cost advantage and unsurpassed abrasion resistance. It is precisely this abrasion resistance that has now been impressively confirmed by the independent professional committee for economic development FRANCÉCLAT in Paris (France), which serves the jewelry industry, among others.

The bright queen
of rhodium plating



There is no reason for any other rhodium coating

The use of pure rhodium makes neither economic nor qualitative sense, so there is no reason to use pure rhodium as a final layer. When evaluating pure rhodium for your application, consider choosing better performance at a lower cost. RHO-DUNA® Alloy has all the positive characteristics of pure rhodium layers with the added benefit of excellent throwing power and uniform layer thicknesses, even in complex components.

Benefits RHODUNA® Alloy in comparison to pure rhodium



Much better abrasion resistance

as the independent test report by FRANCÉCLAT proves



More uniform layer thickness

especially for complex shaped pieces of jewelry



Brilliant white like pure rhodium

whose degree of whiteness almost matches that of a pure rhodium layer



Equally corrosion resistant

in layer thicknesses between 0.05 µm and 0.2 µm



About 22 % cost advantage

as ruthenium has been considerably cheaper than rhodium for many years



Detailed information at:
mds.umicore.com/bright-queen



40 years of direct gold-plating of stainless steel and nickel with AURUNA® 311

The AURUNA® 311 process, which was absolutely innovative at the time, was officially launched on the market at the beginning of 1983. This makes the gold electrolyte, which has remained essentially unchanged since then, 40 years old. Nevertheless, it is still the quality standard for the direct gold plating of stainless steel or nickel.

Until the appearance of AURUNA® 311, direct gold plating of stainless steel was unthinkable or only

possible with a previously applied nickel layer. However, the base material, base metal nickel, contributed to a reduction in corrosion resistance, especially if very thin and therefore non-porous gold layers were intended as a top coat. Direct gold plating with AURUNA® 311 ensures significantly better corrosion behavior.

AURUNA® 311 has been an established name in direct gold plating for 40 years.



Detailed information at:
mds.umicore.com/40-years-auruna-311



Our PLATINODE® EW provides targeted support for the recovery of copper, among other things.

MMO anodes support the recovery of metals from wastewater

In many metal processes, valuable raw materials disappear unused in wastewater or are reprocessed at high cost. With our MMO anodes you can recover (precious) metals from used solutions by electrolysis yourself and thus make your production more sustainable. By recovering the metals, you not only achieve immense raw material savings, but also contribute to environmental protection by reducing CO2 emissions.



Detailed information at:
mds.umicore.com/platinode-ew-en



PLATINODE® HC



The push into a future-oriented, sustainable hard chrome production.

Lead anodes in hard chrome plating are deprived of their advantage

PLATINODE® HC - sustainable and economical

Our PLATINODE® HC platinized titanium or niobium anode, specially developed for hard chrome processes, enables significant energy savings compared to lead anodes. As part of the European Green Deal, which provides for a significant reduction in energy consumption and thus CO2 emissions, it is therefore eligible for funding. However, funding is currently suspended (as of January 2024).

Advantages in terms of sustainability

The reason for this is the lead chromate produced during hard chrome plating, which is ecologically classified as "highly hazardous to water" (highest possible classification) in Germany. In addition, the waste product is classified as carcinogenic and toxic to reproduction.

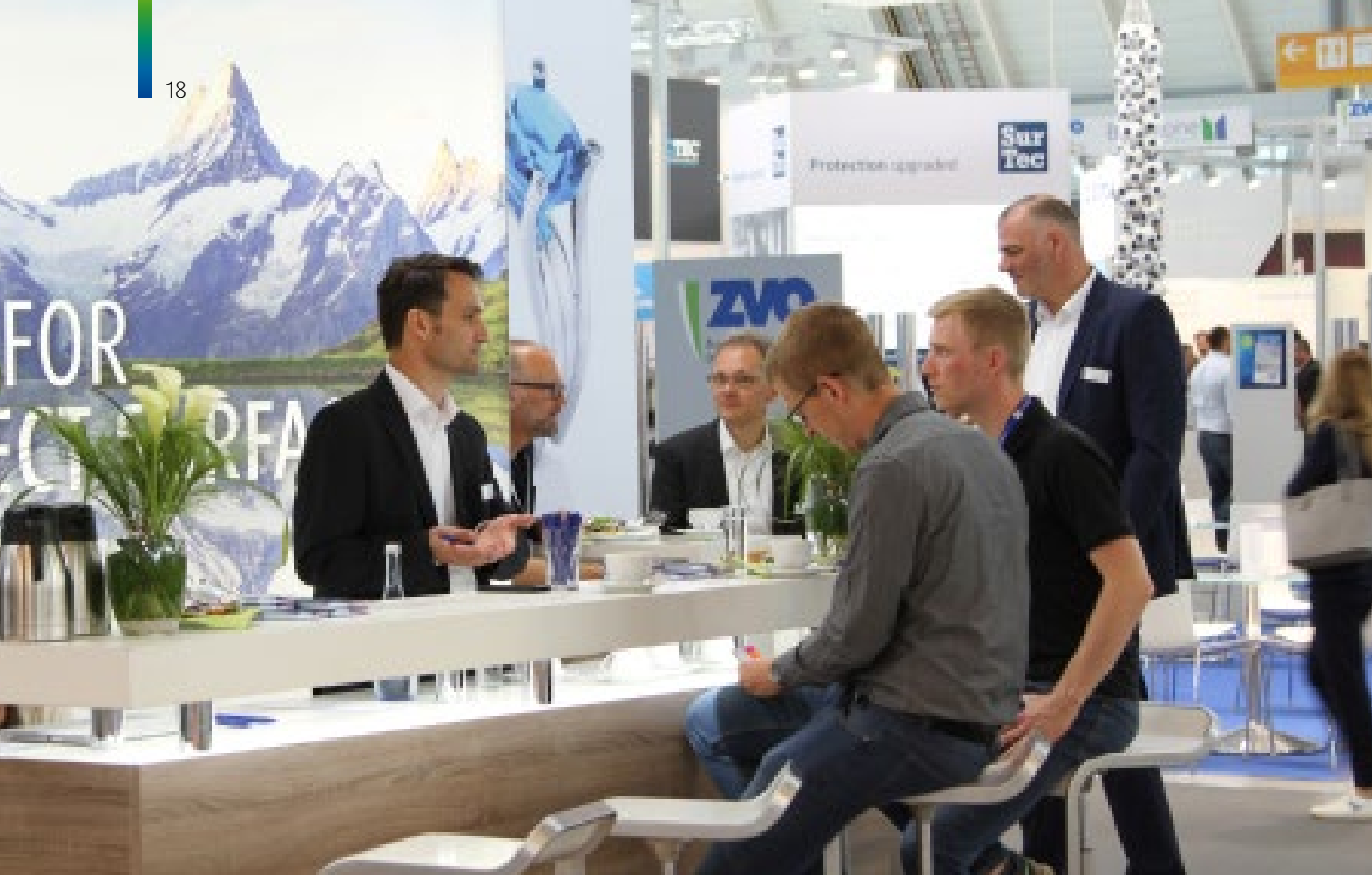
Energy savings of over 30 %

The independent engineering firm Delta Engineering & Chemistry carried out a comparative analysis under laboratory conditions. It was found that a 1:1 replacement of lead anodes with the better conducting PLATINODE® HC enables energy savings of at least 2.7 %. In practice, we are already experiencing actual savings of around 12 % through pure replacement. The engineering office confirms a reduction in energy consumption of over 30 % when taking advantage of the flexible shape and stability of PLATINODE® HC. In contrast to conventional lead anodes, the distance between anode and cathode can be significantly reduced, which makes the required energy input decrease almost linearly.



Detailed information at:
mids.umicore.com/platinode-subsidy





We look forward to welcoming you again at trade fairs worldwide in 2024.

Outlook for the events in 2024

We hope to be able to welcome our customers and interested parties in person at events all over the world again in 2024. Preparations for this are underway as usual so that we can be on site under the right conditions.

To ensure that you are always well informed, we recommend that you visit our event website regularly if you are interested in a personal exchange - or, even more conveniently, subscribe to our newsletter.



All current events can be found at:
mds.umicore.com/events



LinkedIn Group: Trends in Electroplating

We have set up a LinkedIn group to discuss current topics and trends in the industry. We would be delighted if you would join the group and actively participate. Every group member can publish, share and comment on content. But of course, silent readers who just want to stay up to date are also welcome.

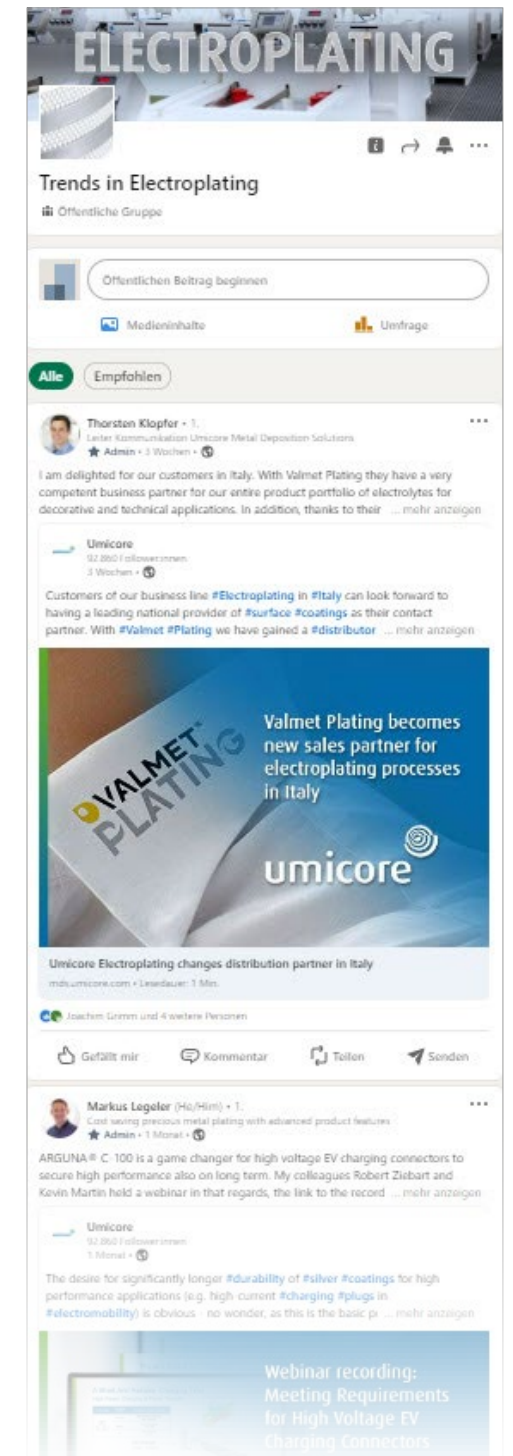
To join the group, simply enter the name of the group 'Trends in Electroplating' in the search bar on LinkedIn or scan the QR code on this page.



Share the latest information in the LinkedIn group 'Trends in Electroplating'.



Join the group at:
www.linkedin.com/groups/9049629



Passion for
perfect surfaces

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