

Issue 38/2023


umicore
Metal Deposition Solutions

umicore goldpost

Sustainable palladium substitute
with significant price advantage

Page 12

Sustainable hard chrome plating
with PLATINODE® HC

Page 17

Introduction of our Umicore
RISE Strategy 2030

Page 19

New standard for plug contacts in
high-power applications

Page 6

In **Munich**, we will be exhibiting from
14. - 17. November 2023 to participate in Productronica.
This is one of the most important electronics
manufacturing trade fairs in Europe.



Table of contents

Umicore Inside

Introduction of new management	4
News overview	5

Products

ARGUNA® C-100	6
Technical silver overview	9
Semiconductor electrolytes	10
Introduction San Ei	11
RUTHUNA® as palladium substitute	12
Overview brush plating electrolytes	15
PLATINODE® HC	16

Outlook

Events 2023	18
Strategy: Umicore RISE 2030	19

Imprint

Publisher: Umicore Galvanotechnik GmbH,
Klarenbergstrasse 53-79, D-73525 Schwaebisch Gmuend
Editorial management: Umicore Galvanotechnik GmbH
Design and layout: Umicore Galvanotechnik GmbH
Text: Umicore Galvanotechnik GmbH

©2023 | All rights reserved.

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



Dear readers,

I am pleased to present you with our new annual issue of Goldpost.

A lot has happened again in 2022. First and foremost, of course, our latest products such as ARGUNA® C-100 or the expansion of the RUTHUNA® product family.

In this issue, however, you can also expect some changes on our own account. Among other things, we would like to introduce the new management of the business unit, consisting of Michael Herkommer and Olivier Bracher. Furthermore, there is a short insight into the strategic direction of the Umicore Group.

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

Your

Thomas Engert
Managing Director

New management of the business lines Electroplating & Thin Film Products



Michael Herkommer is the new head of the Electroplating (EP) business line

Since this summer, Michael Herkommer, previously responsible for technical sales, has been steering the fortunes of our entire Electroplating business line.

We asked Michael Herkommer where he sees the strengths and also the challenges for our business line as the new Head of Electroplating, where he would like to bring about changes and how he would like to do this, but also what he does in his private life as a balance to the demanding tasks - read his answers in a short interview.



Olivier Bracher takes over the Thin Film Products (TFP) business line

With Olivier Bracher, we were able to gain a manager for our business line TFP who is absolutely experienced in the industry and enthusiastic about technology. For more than 20 years he has been working in the field of vacuum coating technology in various functions and countries before he came back home to early 2022.

We asked him how he plans to use the experience he has acquired, his knowledge and his large network, what his vision is for TFP, but also what was decisive for his return to his old place of work - read his answers in a short interview.



Interview Michael Herkommer:
mds.umicore.com/manager-ep



Interview Olivier Bracher:
mds.umicore.com/manager-tfp



Umicore Inside - News overview



As of February 01, **Dr. Klaus Leyendecker** has taken over the management of our Semiconductor Processes and Products division. Please contact him (Tel.: +49 7171 607 223, E-Mail: klaus.leyendecker@eu.umicore.com) for comprehensive advice and specific process details.

The IntraCu® products for advanced packaging round off our comprehensive portfolio for the semiconductor sector. The creator of this revolutionary product line is **Dr. Yun Zhang**, founder and managing director of our partner company Shinhao Materials LLC. We talked to her about the products themselves, and also about her as a person - read the short interview on our website.



Chain of Custody (CoC) certification enables us to offer precious metal-containing products for plating made from proven recycled precious metals. We were also awarded the Platinum Medal for Corporate Social Responsibility by **EcoVadis**. This puts us among the top 1% of all companies in the global EcoVadis network of over 90,000 companies.



Interview Dr. Yun Zhang:
mds.umicore.com/dr-yun-zhang-en



Discover all news here:
mds.umicore.com/news





50.000

40.000

30.000

20.000

10.000

ARGUNA® C-100 offers best performance with over 50,000 mating cycles.

New standard for plug contacts in high-power applications

Technical requirements of the industry have not been met so far

Many requirements for the establishment and expansion of an efficient charging infrastructure have been or are currently being created. However, there is still a lack of a sustainable solution for long-lasting charging contacts. Current systems for transferring high charging power from the power source to the battery are still far from satisfactory for manufacturers and suppliers.

Our silver-graphite dispersion electrolyte ARGUNA® C-100 is specially developed for connector contacts used in high-power applications (e.g. high-power charging / HPC). A stable layer system with maximum charging performance without restrictions over the entire lifetime of the charging connectors is the result - and thus the new standard for the industry.



Pins for high power applications, which gain abrasion resistance due to embedded graphite lamellae.

ARGUNA® C-100 is based on a simple function

Graphite particles perfectly embedded in the silver layer achieve extraordinary abrasion resistance and thus the high reliability and durability of the plug contact required by the industry. This is made possible by an optimized graphite component which, embedded in the silver matrix, serves as a solid lubricant. In this way, abrasion on the entire contact zone during the mating process can be reduced to a negligible level.

Anytime economical and highly functional charging connectors

- Consistent coating performance at elevated temperatures (>150°C) even with local temperature rise in the contact point
- Stable layering properties under humidity and dust and other exposed environmental conditions
- Maintenance-free layer system over the entire service life the otherwise necessary lubrication is not required
- Cross-compatibility with existing infrastructure matching the existing connector types in the field



To find the right process for your technical application, it makes sense to take a look at our silver overview.

Silver processes for numerous technical applications

Umicore offers numerous silver electrolytes for various technical applications and fields of use. These include, for example, electrical contacts in connector technology, high-frequency technology, medical technology, and coatings for electrical packaging technology.

Using a tabular overview, we have presented the property profiles and applications of silver electrolytes.



Our expert Robert Ziebart explains why the previous standard for connector coatings in high-power applications cannot be satisfactory.



Detailed information at:
mds.umicore.com/arguna-c-100



You can find the video at:
mds.umicore.com/ag-c-100-webinar-en



Detailed information at:
mds.umicore.com/silver-processes





Take Advanced Packaging to a completely new level

AURUNA® SC

A cyanide-free electrolyte for plating Gold with a purity of 99.99 %. The process is suitable for fine-pitched RDL wafers and Bump Plating. With the neutral pH range AURUNA® SC is compatible with most common resist types for this application.

NiRUNA® SC

A sulfamate based system with very low stress, boric acid free version available.

ARGUNA® SC

Is a mild alkaline cyanide-free pure silver electrolyte. ARGUNA® SC layers exhibit purity > 99 % providing resistivity and solderability in cyanide systems. The process features a wide compatibility with most resist types.

Umicore Tin SC

Pure Sn plating process operate with a wide current density range. The Sn coatings are very pure and have low tendency for whisker growth. Very stable electrolyte system based on MSA.

Umicore Indium SC

Umicore Indium SC systems deposit pure Indium layers over a very wide current density range. The stable electrolyte system is fully analysable and shows very good covering properties and uniform grain size.



Detailed information at:
mds.umicore.com/semiconductor

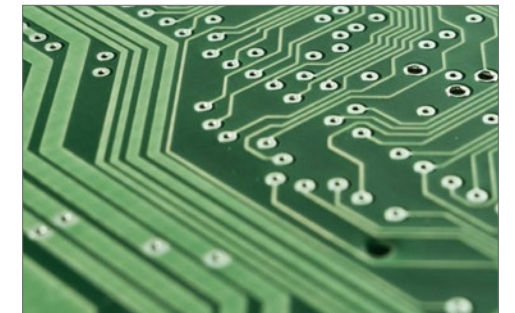


Exclusive distribution partnership with San-Ei for Europe

We are always striving to actively develop our role as a reliable partner and supplier to European PCB manufacturers.

Thus, in addition to the cooperation with the important chemical manufacturer Uyemura, which has already been successful for decades, we have now succeeded in gaining San-Ei, another Japanese market leader, in order to be able to serve other relevant areas of pcb production in the future.

The non-conductive pastes are used for the permanent plugging of through holes and laser BVHs on printed circuit boards. For this purpose, San-Ei products will be offered in the European region in the future exclusively by Umicore.



San-Ei is well-known in the electronics industry for its hole filling pastes and is the market leader in this application area in Asia and America.



Detailed information at:
mds.umicore.com/sanei



Sustainable palladium substitute with significant price advantages

For years, palladium has been considered the ideal intermediate or final layer among platinum metals. Now the balance of power is changing – RUTHUNA® beats palladium, which has been the preferred choice up to now, in all relevant properties.

Our RUTHUNA® is not only the optimal solution in terms of price

Palladium owes its predominance primarily to its price advantage within the platinum group of metals at the time. Compromises with other properties were willingly accepted because of this. RUTHUNA® electrolytes, on the other hand, not only impress with their cost-effectiveness – they are also advantageous in terms of sustainability, quality, user-friendliness and, in the technical field, for selected applications in the area of functionality.



RUTHUNA® the new king of the platinum metals.

RUTHUNA® gives you a competitive advantage on all levels



Over 70 % cost advantage

because the ruthenium price has been stable for years and is much lower.



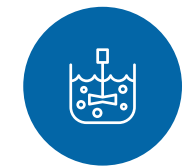
Reliable source of raw materials

because ruthenium, unlike palladium, is only sourced in small quantities from Russia.



Highest possible abrasion resistance

as ruthenium is the most abrasion-resistant platinum metal.



Depositability on non-ferrous metals

to replace the previously used palladium 1:1 without effort.



Reuse of ruthenium

from used electrolytes will be charged to you at daily updated rates.



Our RUTHUNA® was developed for decorative applications. However, its use in some technical applications is also beneficial.

RUTHUNA® is suitable as a final layer – but also shows its advantages as an unnoticeable intermediate layer

Of course, RUTHUNA® can be used directly as a finishing layer. We offer RUTHUNA® in different versions, which mainly differ in composition and thus in colour shade. Light coatings with an L* value (L*a*b* colour space) of 74 to very dark coatings with an L* value of 63 are possible as standard.

However, ruthenium is not always desired as a final layer or the brightness is not light or brilliant enough. Here, RUTHUNA® has the natural limitation in colouring – palladium (L* value: 84) or rhodium (L* value: 90) have their preference here. Nevertheless, you can take advantage of the obvious benefits of RUTHUNA® by using it as an intermediate layer without any problems.



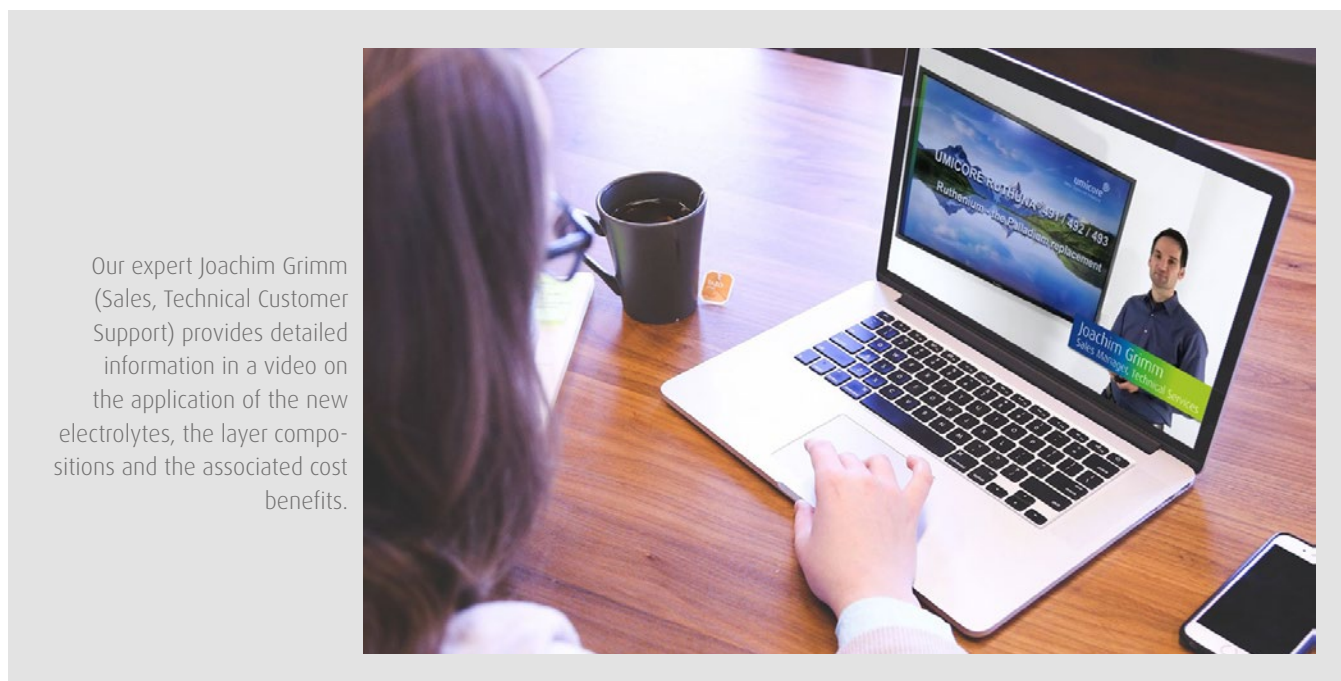
Suitable electrolytes for partial coating can be found listed in our overview.

Brush Plating Electrolytes at a Glance



We offer various electrolytes which enable targeted, partial coating with a pen plating unit. This is mainly needed for multicolor coatings, repair work and coatings of small areas.

This is mainly used for jewelry, watches, glasses, writing utensils, household items and cutlery.



Our expert Joachim Grimm (Sales, Technical Customer Support) provides detailed information in a video on the application of the new electrolytes, the layer compositions and the associated cost benefits.



Detailed information at:
mds.umicore.com/king-ruthuna



You can find the video at:
mds.umicore.com/video-ruthuna-en



Detailed information at:
mds.umicore.com/brush-plating





Especially in energy-intensive hard chrome plating, the current electricity prices have a particular impact on production costs.

Sustainable hard chrome plating with PLATINODE® HC

Simplification of the overall process due to the ecological advantages

Our PLATINODE® HC platinised by high-temperature electrolysis is specially designed for hard chrome production. Anodes of this product family have been established in the market for years and are the significantly more sustainable alternative compared to production with conventional lead variants - lead is now classified as an environmental toxin with devastating effects on the environment and humans. The resulting increase in regulation, but also the higher quality coating results, have been the main arguments for producers in favour of PLATINODE® HC up to now.

Our PLATINODE® HC allows savings of up to 10%

Now PLATINODE® HC, which is already more cost-effective in the medium term due to its durability and ease of handling, scores once again in economic terms. Compared to lead anodes, it has a lower oxygen overvoltage and better conductivity, which means up to 10 percent lower energy consumption for the same layer application.

In the past, this was hardly significant due to the rather low energy costs - today with electricity prices of over 0.30 €/KWh even for industry, it is. At the same time, this simple measure also reduces your CO2 footprint.



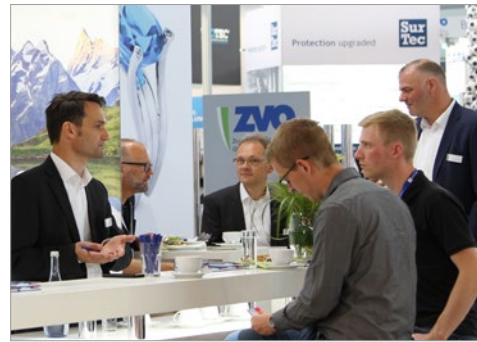
Detailed information at:
mds.umicore.com/platinode-hc-energy-saving



Outlook for the 2023 events

Last year, after a 2-year break, many fairs were again held in presence. After the long time without personal contact, the joy on all sides was great to see familiar and also new faces.

In 2023, we hope to be able to welcome our customers and interested parties again in person at events in all parts of the world. The preparations for this are running as usual, be able to be on site under appropriate conditions. In order to be always well informed, we recommend to visit our event website regularly, if you are interested in a personal exchange - or even more conveniently, to subscribe to our newsletter.



We look forward to welcoming you back to trade shows worldwide in 2023.



All events are up to date at: mds.umicore.com/events



Our goal is to be a true transformation partner for our customers by 2030, supporting them on their journey towards sustainability and the circular economy.

Introduction of our Umicore RISE Strategy 2030

The Umicore Group has set the course for the coming years and summarised the intention "to be a true transformation partner for our customers" in the Umicore RISE Strategy 2030. As the MDS business unit, we too have always been interested in looking ahead and helping to shape the future in a sustainable way.

Now we want to use our unique position to meet the growing demand for advanced materials and enable an even stronger circular economy, not only for critical metals, and thus fulfil our part of the project.



Detailed information at: mds.umicore.com/rise-strategy



Passion for
perfect surfaces

Umicore Galvanotechnik GmbH

Klarenbergstrasse 53-79
73525 Schwaebisch Gmuend
Germany

Tel.: +49 (0) 7171 607 01
Fax: +49 (0) 7171 607 316
galvano@eu.umicore.com

mds.umicore.com


umicore
Metal Deposition Solutions