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Innovative Coating Processes

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Avaluxe, based in Fürth, Bavaria, Germany, is a global supplier of advanced materials and services revolving around PVD. The company's core business and expertise includes:

- Advanced Coating Materials - Avaluxe specializes in producing and supplying a diverse range of advanced materials, and specialty alloys. These materials are used mainly in thin film technology (PVD) for various industries such as aerospace, defense, electronics, energy, medical, automotive, and telecommunications.
- Thin Film Deposition Technologies - Avaluxe International and "Avaluxe Coating Technologies GmbH & Co. KG" are combining thin film materials and thin film technology to enhance thin film coatings for various high-tech applications.
- Partnership with Advanced Energy and Gencoa - Avaluxe is representing "Advanced Energy" one of the worldwide leading producers for power supplies for thin film technology. Avaluxe is representing "Gencoa Ltd.", one of the worldwide leading producers for plasma deposition components and magnetrons in addition to process control and sensing products.
- Recycling - Avaluxe has expertise in recycling. The company offers services to reclaim these metals from high value scrap materials coming from the PVD industry, contributing to sustainability efforts and reducing environmental impact.

In combination with coating materials from Avaluxe International and thin film knowhow of Avaluxe Coating Tech, we are able to enhance the performance of the coatings of our customers. Overall, Avaluxe's core business is centered on providing innovative materials solutions to meet the evolving needs of its diverse customer base across multiple industries, with a focus on advanced materials.

<https://www.svc.org>

DOI: <https://doi.org/10.14332/svc24.proc.0059>

INNOVATING COATING PROCESSES



Presented by: Lucca Pernagidis



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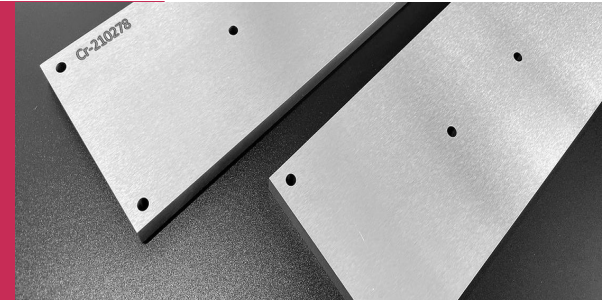


PVD Technology defines the future of the coating industry

The Global Physical Vapor Deposition (PVD) Coatings Market size is estimated at USD 5.27 billion in 2023, and is expected to reach USD 7.2 billion by 2028, growing at a CAGR of 6.42% during the forecast period (2023-2028).



All you need for great PVD coating results



Coating Materials



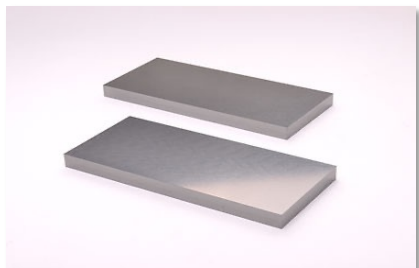
ACT PVD consulting



Our Partners

PVD Coating Materials

standard and custom-made alloys



Al

Ti

Cr

Mo

Zn

Nb

W

Si

C

Ta

Fe

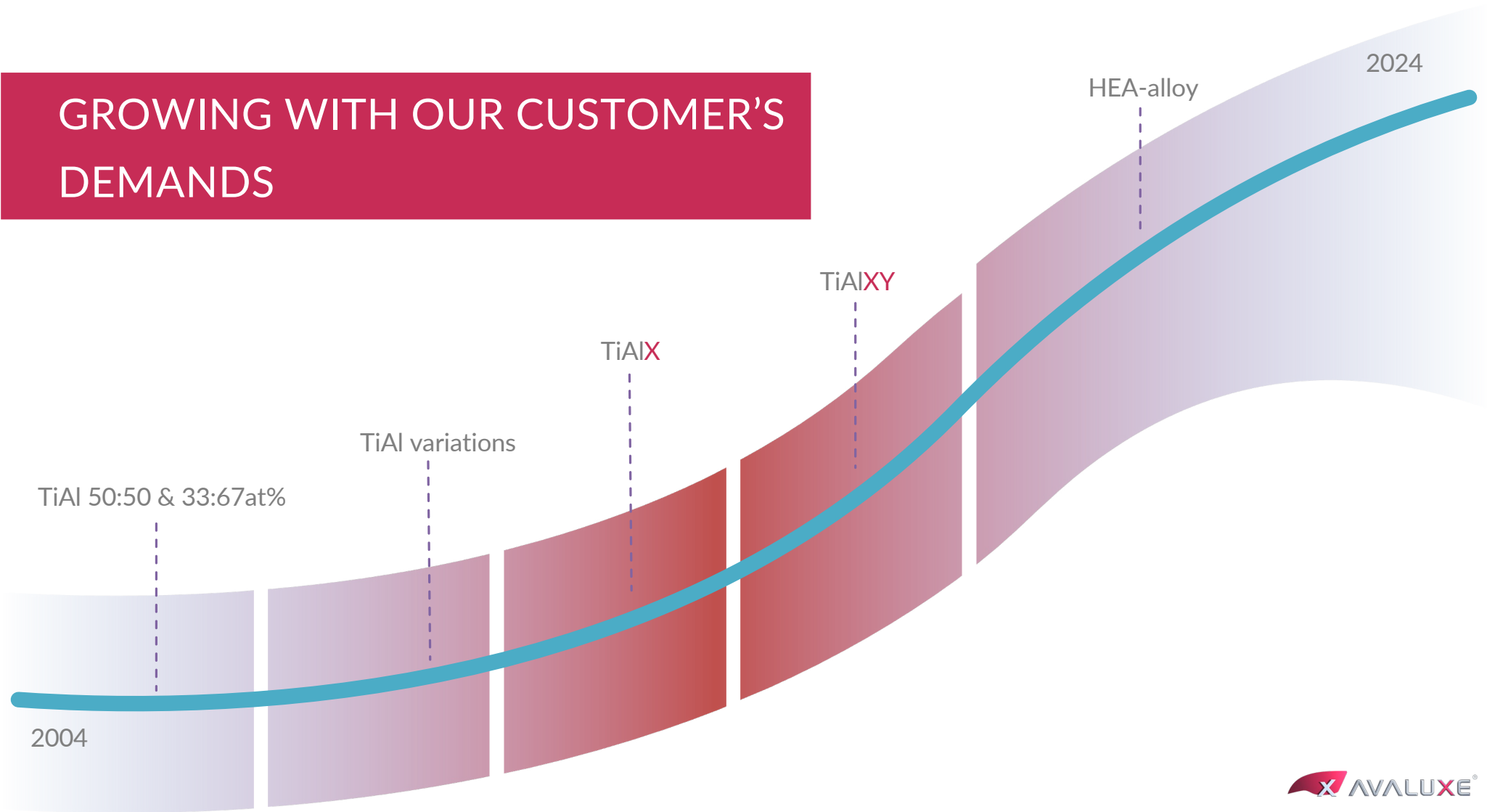
Co

Cu

V

Ag

GROWING WITH OUR CUSTOMER'S DEMANDS



AVALUXE extended competence

Thoroughly selected partners



Magnetrons and
process control
devices



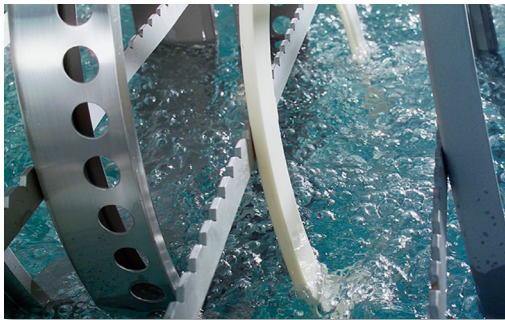
Power supplies



Precision shield cleaning

HIGHEST PERFORMANCE IN DEMANDING PARTICLE-SENSITIVE PRODUCTION

For increasing the productivity of your coating systems



PRECISION CLEANING

Wet-chemical
shield cleaning technology



DRY AND WET BLASTING

State of the art for shield cleaning and
surface structuring.



TWIN WIRE ARC SPRAY

Increasing cycle time between
cleaning maintenance

AVALUXE focuses on optimizing coating processes across industries

AUTOMOTIVE | FUELCELLS & ELECTROLYZERS | AEROSPACE

MEDICAL | FORMING & MOLDING TOOLS | CUTTING TOOLS | DECORATIVE

PV & SOLAR THERMAL | PRECISION OPTICS | ARCHITECTURAL GLASS | SEMICONDUCTORS

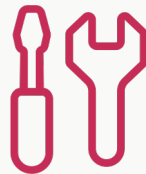


AVALUXE enhances various PVD coating applications



Decorative applications

A variety of colors for metals and plastics



Tools & Hardware

improved hardness, and wear/corrosion resistance,



Automotive components

improved durability and appearance



Green Energy

H2 solutions
Photovoltaics & thermal solar

Achievements for our customers:



Material costs reduction by
-19% due to optimized purity

Target yield
increased from <20% to 34.5%

Reduction of the dead time
of the system by 75%

Meet the family

The core team.

Passion and hands-on mentality
in a power combination.



Christos Pernagidis
Founder
CEO



Peter Schiff
Founder
CEO



Lucca Pernagidis
next Gen
Sales



Max Schiff
next Gen
Operations

Numbers
we are
proud of

Customers

>265

Products

>8.700

founded in

2004

countries

23

team members

16

combined PVD experience

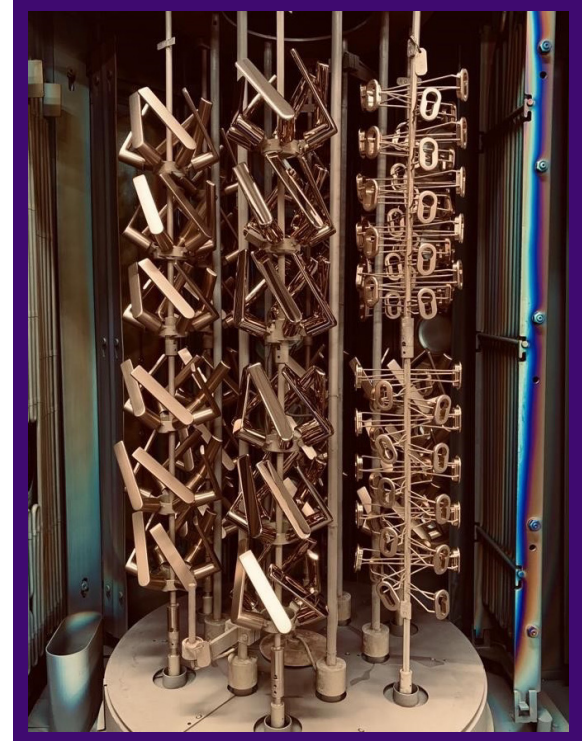
153 years and counting...

On the cutting edge of PVD Technology, plus...

COATING MATERIALS

PARTNER SOLUTIONS

KNOWHOW



PVD COATINGS WITHOUT BOUNDARIES



AVALUXE
Coating Technologies

PVD KNOWHOW

AVALUXE
Coating Technologies

OPTIMIZATION

Improvement of existing PVD and production processes

DEVELOPMENT

Application-specific development of PVD coatings, PVD processes and products

INNOVATION

Advice on PVD technology and the development of innovative PVD processes

KNOWHOW

Know-how transfer and employee training for better and more sustainable coating results

We support our customer to develop surface coatings for a wide variety of industries and applications.

CONSULTING

HANDS ON

 **AVALUXE**[®]

DECORATIVE use case: “Hilton Brown”

Requirements

L*a*b* values
Corrosion resistant
Scratch resistant

Process control

Gencoa Speedflo
Gencoa Optix

Coating material

Custom made alloy

Result

Reproducible color satisfying requirements
Product was shown by the customer at “Salone del Mobile” in Milano



TOOL use case: AlCrN with HiPIMS

Requirements

Hardness
Adhesion

Process control

Gencoa Speedflo
Gencoa Optix

Coating material

AlCr alloy
(with the right ratio;)

PVD Process

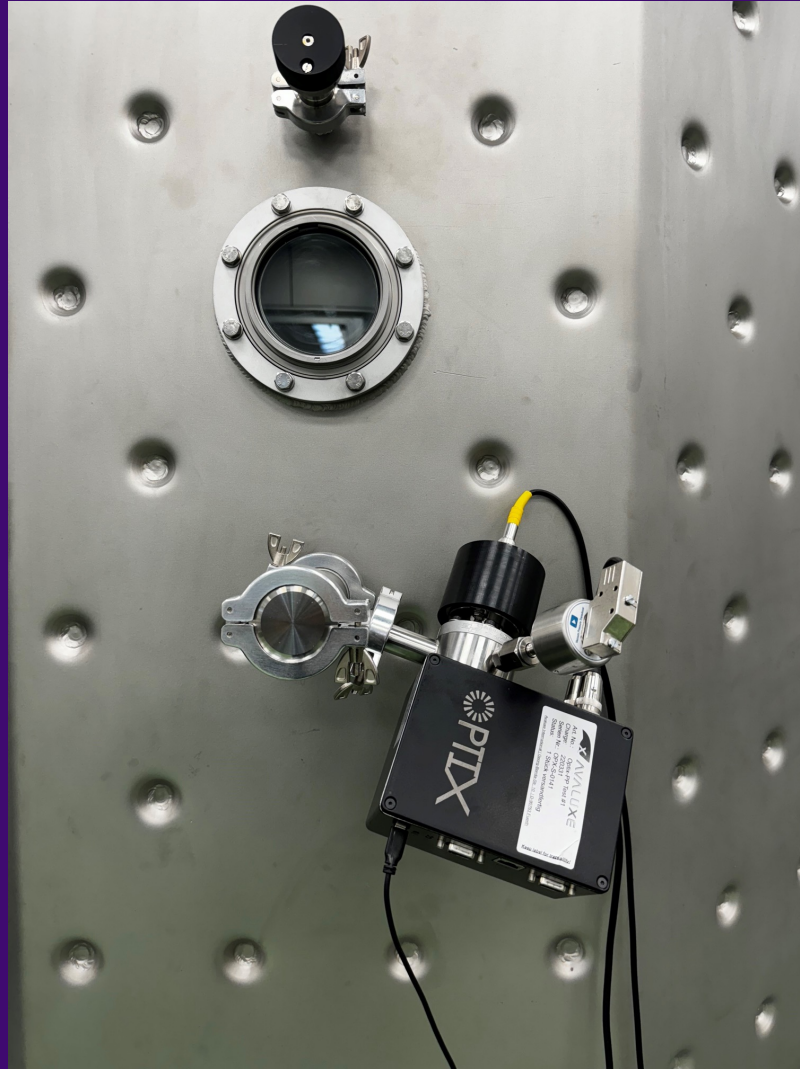
HiPIMS

Result

Hardness: 37GPa (Nanoindentation)
Adhesion: HF1 (Rockwell test)



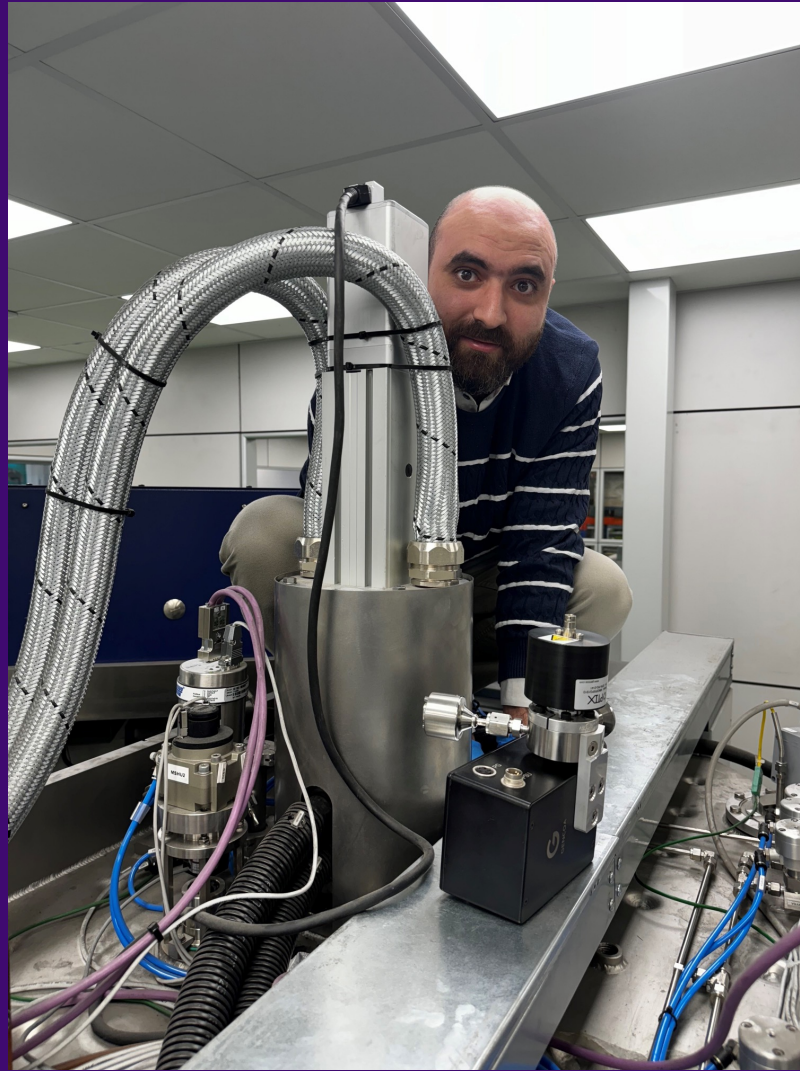
“HANDS ON”



“HANDS ON”



“HANDS ON”





- **The difference we make for our customers:**
SUPPLY CHAIN SECURITY. Reliable and seamlessly
- **The advantage we bring to customers:**
ALL IN ONE. We always keep an eye on the bigger picture
- **Why customers prefer working with us:**
COMPREHENSIVE SUPPORT along the whole process chain

Thank you for your attention.

