

VeroMetal[®]
Technical Finishes



VeroMetal[®]
Robert Beckers

VeroMetal develops and produces cold spray metal coatings



- Esthetical



VeroMetal develops and produces cold spray metal coatings

- Functional



VeroMetal and Antibacterial coatings

First anti microbial coating in 2007 based on pure Copper

Clinical trials Birmingham Hospital



VeroMetal and Antibacterial coatings

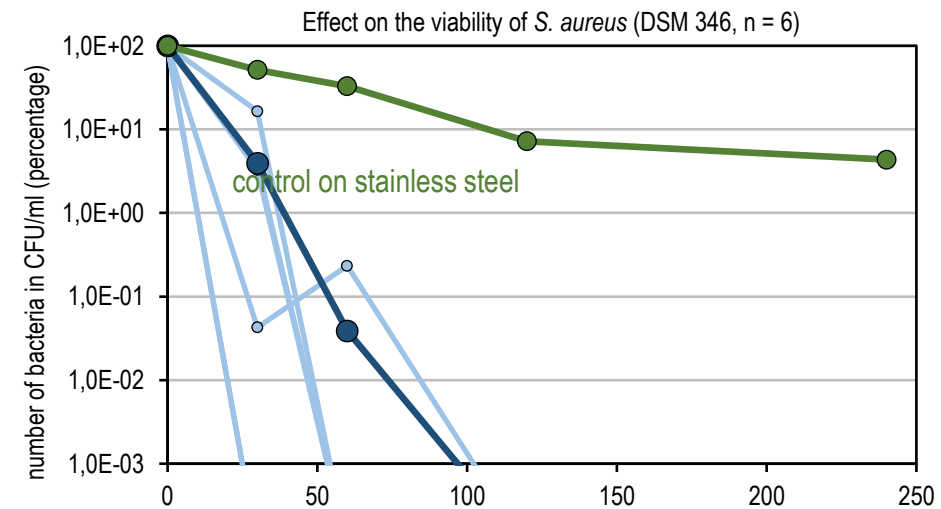
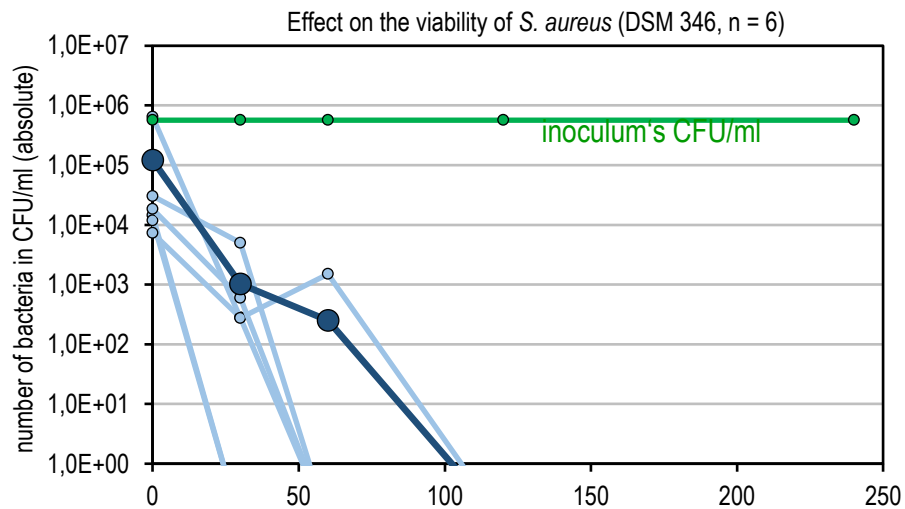
First anti microbial coating in 2007 based on pure Copper

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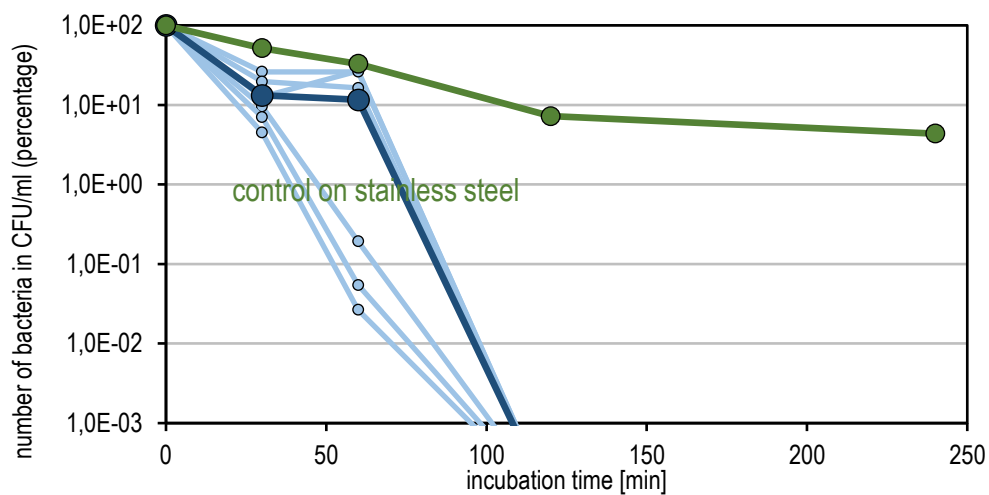
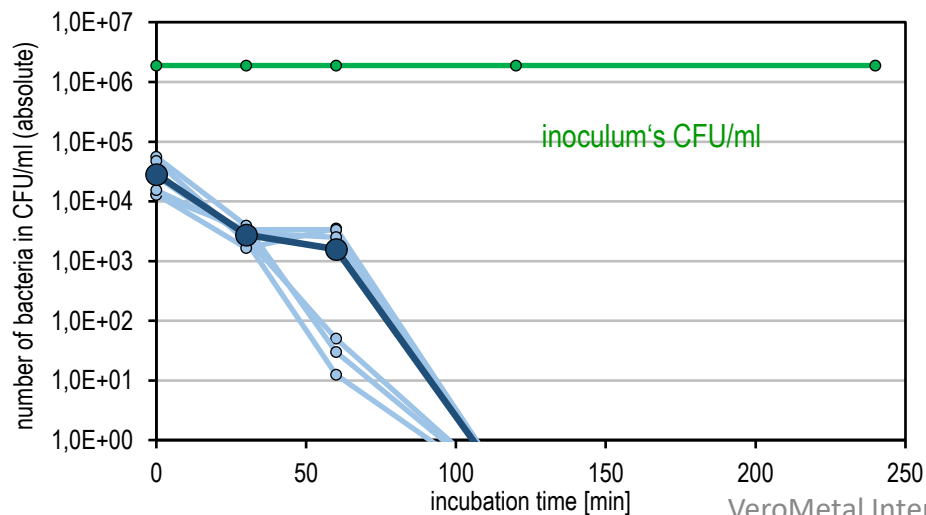


Generation One

„Copper“



„Bronze“



Practical Use

This relief from Herculaneum shows Achilles scraping rust from his bronze spear onto the wound of Telephus



Humanity knows for ages that copper has anti microbial and antifouling properties

Practical Use



Practical Use



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Practical Use



VeroMetal International b.v. Buizerdweg 6A, 6374BS Landgraaf
www.verometal.com

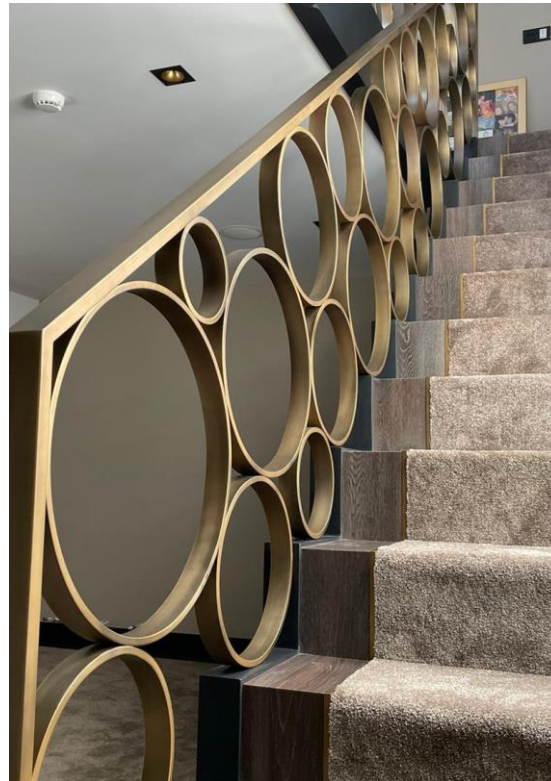
Practical Use



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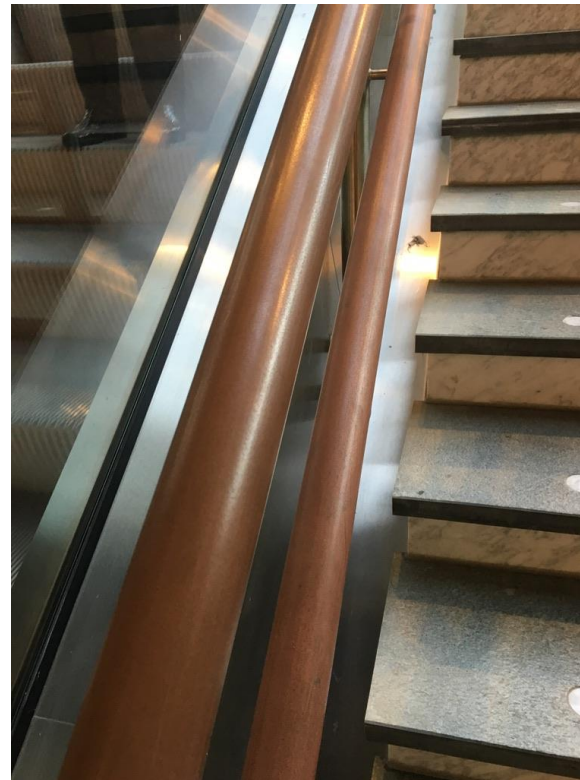


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Property's Generation one

Functional quality

- Functional in light and dark environment

Durable

- Very robust and durable due to the metal in the layer
- Polymer stability > 10 years

Ease of use

- Easily check of physical presence of the **Copper** layer

Design freedom

- Suitable for almost any surfaces and base materials
- For indoor and outdoor use
- Suitable for almost all forms
- Variable layer thickness between 50 - 200 micron
- Long lasting aesthetically pleasing surface



First anti microbial coating based on pure Copper had to compare with TiO2

Functionality

Copper

- Durable +++
- Visible +++
- Works within 1 hour +++
- Works in the Dark +++
- Application ++ -
- No Stains + --
- Cleaning ++-
- TCO ++

TiO2

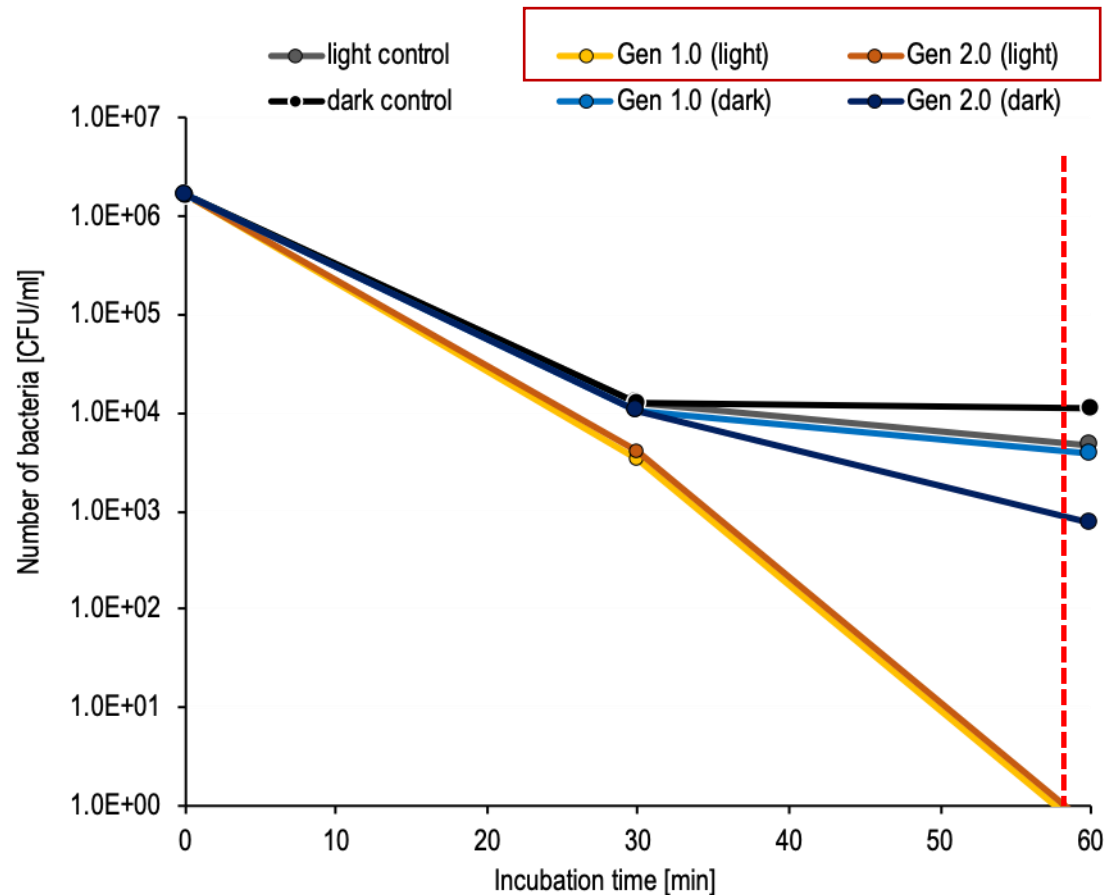
- Durable +
- Visible +--
- Works after 1 Hours ---
- Works in the Dark ---
- Application ++-
- No stains ++-
- Cleaning +--
- TCO +--

VeroMetal Second Generation Anti Microbial Coating

- Durable +++
- Visible +++
- Kills Microbes within 1 hour +++
- Kills Microbes in the Dark +++
- No Stains +++
- Application ++-
- Cleaning +++
- TCO +++



Inactivation of bacteria (*E. coli*) under artificial daylight



Setup acc. to ISO 22169:2011
Escherichia coli as test bacterium

Excitation: Daylight fluorescents
lamp

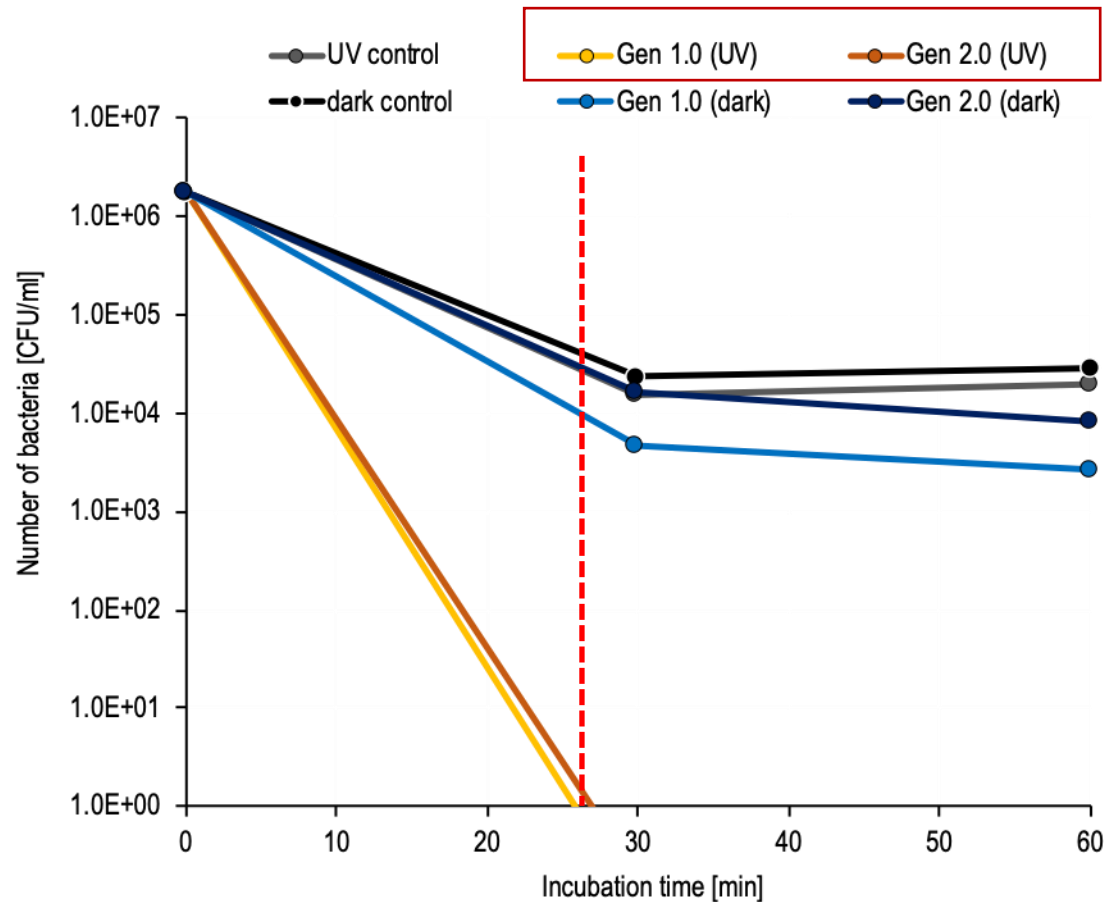
Intensity: **129 $\mu\text{W}/\text{cm}^2$, equal
to the illumination of
offices (~950 lux)**

Both VAM coatings are equally capable of inactivating the test organism *E. coli* under ambient-like conditions.

Total inactivation of *E. coli* under UV irradiation after 60 min, and thus some self-disinfecting properties.

**Very strong antimicrobial effect under
ambient conditions**

Inactivation of bacteria (*E. coli*) under UV irradiation



Setup acc. to ISO 22169:2011
Escherichia coli as test bacterium

- Excitation: 365 nm
- Intensity: 500 $\mu\text{W}/\text{cm}^2$

•Total inactivation of *E. coli* under UV irradiation after 30 min.

→ Very strong and rapid antimicrobial effect

Property's Generation 2

Functional quality

- Functional in light and dark environment
- The effectiveness accelerates with artificial Light
- The effectiveness accelerates in the sun
- The effectiveness increases extremely by the influence of UV light

Durable

- Very robust and durable due to the metal in the layer
- Polymer stability > 10 years

Ease of use

- Easily check of physical presence of the VAM layer

Design freedom

- Suitable for almost any surfaces and base materials
- For indoor and outdoor use
- Suitable for almost all forms
- Variable layer thickness between 50 - 200 micron
- Long lasting aesthetically pleasing surface



Finishes



Finishes



Practical Use



Practical Use



Thanks for Attention

