



Version: 16 July 2018

UMICORE ANTI-TARNISH 616 PLUS



Heavy Metal Free Antitarnish Process for Silver

Umicore Antitarnish 616 is a medium based on nano-technology for protecting silver against tarnishing. Special nanopolymers absorb on the silver surface and cross-link to form a protective layer of a few nanometers thickness. The invisible layer protects the base material from oxidation and discoloration.

Through the additional use of Umicore Antitarnish 616 Makeup Salt PLUS, as well as the application of an electrical voltage, Umicore Antitarnish 616 can be applied even better and more securely to the surfaces to be protected. Thus, not only silver surfaces, but also other metallic surfaces can be protected from oxidation and discoloration. In comparison with antitarnish processes available on the market, it is possible to improve the resistance of protected silver surfaces enormously, e.g. in 2% K_2S solutions.



Advantages

- Antitarnish process for silver and other metallic surfaces
- Free from the Cr (VI) compounds restricted in use
- Biologically safe, skin-friendly and hypoallergenic
- Dirt and water repellent
- Reduces the fingerprint sensitivity of the surfaces
- Suitable for rack, barrel and reel-to-reel plating

Applications

- Silver and other metallic surfaces

UMICORE ANTITARNISH 616 PLUS



TECHNICAL SPECIFICATIONS

Electrolyte characteristics

Electrolyte type	Aqueous immersion process free from heavy metals
pH value	3.7 (3.5 - 4) at operating temperature
Operating temperature	55 - 65 °C
Voltage	3.5 - 4.5 V
Anode material	MMO (type PLATINODE® 187 SO)

	614	616	616 Plus
K ₂ S test	++	++	+++
(NH ₄) ₂ S test	+	++	+++
Na ₂ S test	++	++	+++
Reality test	+	++	+++

+++ exceeding
++ very good
+ good
0 moderate
- bad
-- very bad

Coating characteristics

Coating	Uninfluenced
Brightness	Uninfluenced

5% Potassium Sulfide Solution, 25°C

unprotected	614	616	616 Plus
after 30s	after 120s	after 120s	after 120s

2% Potassium Sulfide Solution, 25°C

unprotected	614	616	616 Plus
after 30s	after 120s	after 120s	after 120s

2% Ammonia Sulfide Solution, 25°C

unprotected	614	616	616 Plus
after 30s	after 120s	after 120s	after 120s

YOUR CONTACT

Do you have a specific question or would you like a no-obligation quote calculation?
Our specialist will be happy to help you with any technical questions you might have.



Markus Legeler
Manager Sales International

Mail: markus.legeler@eu.umicore.com
Phone: +49 (0) 7171 607 - 204


umicore
Electroplating

The information and statements contained herein are based on our experience in the fields of research and applied technology and are believed to be accurate at the time of publication, but - unless agreed in writing - we make no warranty with respect thereto, including but not limited to any results to be obtained. This product information sheet in the English language prevails any translation.

www.ep.umicore.com