

Umicore Sealing 691

Protection for technical precious metal surfaces

Your advantages:

- + Especially developed for technical components like electrical contacts
- + Very short treatment times, making it suitable for continuous lines
- + Long-lasting protection against tarnishing and discolouration
- + Easy to use, both electrolytic and dipping process
- + Free of components like CFCs, CHCs, HCs and chrome
- + No influence on colour or brightness of the finished coating
- + Increased sliding performance, reduced insertion force
- + Outstanding performance in K_2S test: perfect anti-tarnishing protection for silver coatings

Umicore Sealing 691 is a perfect all-rounder to protect technical precious metal surfaces including electrical contacts. The coefficient of friction will be reduced enormously, the sliding performance of connectors will be improved, and even under strong mechanical stress, the functional layer is protected for much longer. In addition, Umicore Sealing 691 prevents tarnishing and discolouring. Silver surfaces treated with Umicore Sealing 691 as a final layer produce outstanding results in K_2S tests.

There are no disadvantages in using Umicore Sealing 691: Electrical characteristics are unchanged, and solderability and contact resistance remain the same. In addition, Umicore Sealing 691 is easy to use: either in a simple dipping process or by electrolytic application for very short contact times in continuous lines. Finally, Umicore Sealing 691 is free of chromium and doesn't contain environmentally harmful substances like CFCs, CHCs and HCs.

Applications

- Connectors
- Lead frames
- Smartcards



Umicore Sealing 691 is designed for post-treatment in continuous lines.

Technical specifications Umicore Sealing 691

Electrolyte characteristics Umicore Sealing 691

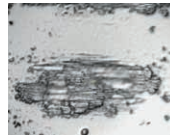
Electrolyte type	Aqueous, metal-free process
pH value	Weakly acidic to neutral
Operating temperature	55 (30 - 60) °C
Immersion time	
Rack/barrel	30 (10 - 120) s
Reel-to-reel	5 (2 - 10) s
Anode material (for electrolytic use)	MMO (type PLATINODE® 187 50)

Coating characteristics Umicore Sealing 691

Colour	No influence
Brightness	No influence
Coefficient of friction	Reduced
Sliding properties	Improved
Solderability	No influence
Contact resistance	< 10 mΩ
Bondability	Protected parts remain bondable

Umicore Sealing 691 reduces friction force

COF (coefficient of friction)



Pure silver without sealing
COF: 0.76



Pure silver with Umicore Sealing 691
COF: 0.04

K₂S test 2% until discoloration appears

Dip time in Sealing 691	Sealing 691 concentrate, 40 °C	
	5 ml/l	20 ml/l
10 s	0.5 min.	1.5 min.
30 s	1.0 min.	2.5 min.
60 s	2.0 min.	4.0 min.
120 s	2.5 min.	5.5 min.

Dip time vs contact resistance at contact normal force 10 cN

