



MIRALLOY® For the Clothing Industry



Zn

Sn

Cu

Your advantages:

- + Copper-tin-(zinc) alloy coatings
- + Bright white coatings (similar to silver)
- + Diamagnetic
- + Nickel-free (EC Nickel Directive 94/27/EC, Oeko-Tex 100 ff)
- + Free of heavy metals such as Cr, Pb, Co, Th etc.
- + Resistant to tarnishing and corrosion
- + Excellent thickness distribution
- + Wide operating range
- + Can be lacquered
- + Can be combined with precious metals
- + The coatings are RoHS compliant
- + Tried and tested process with many zip manufacturers

Copper-tin-(zinc) electrolytes as nickel-free alternatives

Since 1981, MIRALLOY® has been a good alternative for nickel-free coatings in the clothing industry. Today, our customers all over the world profit from more than 30 years of experience and the continuous further development of the product series.

MIRALLOY® is an alkaline-cyanide electrolyte for depositing copper-tin-(zinc) coatings in barrel and rack operation. The colour of the coatings is white – similar to silver.

The metal clothing accessoires (for example zips and metal buttons) coated exhibit a very high resistance during everyday use.

Subsequent plating with gold, rhodium or other precious metals is unproblematic if suitable processes and pre-treatment steps are chosen.

Applications

- Zip parts
- Metal buttons
- Bra fasteners
- Buckles
- Haberdashery



Zips coated with MIRALLOY®

Technical specifications MIRALLOY® 2844

Electrolyte characteristics MIRALLOY® 2844

Electrolyte type	Alkaline-cyanide
Metal content	8.5 g/l Cu 34.0 g/l Sn 0.75 g/l Zn
pH value	> 13
Operating temperature	60 °C
Current density range	0.5 (0.3- .0) A/dm ²
Plating speed	Approx. 0.12 µm/ min at 0.5 A/dm ²
Anode material	MMO (type PLATINODE® 167, graphite)

Coating characteristics MIRALLOY® 2844

Coating	Copper-tin-zinc
Alloy composition	55 wt. % Cu 30 wt. % Sn 15 wt. % Zn
Colour of deposit	White
Brightness	Bright
Hardness of deposit	600 HV
HV 0.05 (Vickers) approx. values	
Max. coating thickness	5 µm
Density of the coating	8.2 g/cm ³



MIRALLOY® copper-tin-(zinc) electrolytes for the clothing industry:

- MIRALLOY® 2841 (white) for rack and barrel operation
- MIRALLOY® 2844 (white) for barrel and rack operation
- MIRALLOY® 2844 LC (white) for barrel operation
- MIRALLOY® 2844 E (white) for barrel and rack operation
- MIRALLOY® 2850 (white) for rack and barrel operation

In Europe 15 to 20 per cent of all women and about five per cent of all men are allergic to nickel. For this reason, the legislators translated the European Nickel Directive into national law with the 7th amendment of the Consumer Goods Ordinance (14 June 2000):

European Nickel Directive (Directive 94/27/EC, 30 June 1994)

- Earrings and comparable objects remaining in a wound during the healing process may not contain more than 0.5 % by weight of nickel.
- Objects intended to come into direct and prolonged contact with the skin (e. g. earrings, chains, rings, watches, buttons etc.) must not be used if the rate of nickel release from those parts of these products coming into prolonged contact with the skin is greater than 0.5 µg/cm²/week.
- If a non-nickel coating is used, it must be guaranteed that the rate of nickel release from those parts coming into direct and prolonged contact with the skin will not exceed 0.5 µg/cm²/week for a period of two years of normal use of the product.

The world of noble
and functional surfaces