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NIPHOS® 6500

Nickel Phosphorus Electrolyte



High-performance nickel-phosphorus process for maximum efficiency

NIPHOS® 6500 is a modern, high-performance, high-speed electrolyte for the deposition of X-ray amorphous or nanocrystalline nickel-phosphorus coatings with a phosphorus content of over 11%. The process is designed for maximum productivity with consistently high coating quality.

The deposited coatings are extremely low in cracking and tensile stress, and by specifically adjusting the electrolyte and deposition parameters, even slight compressive stresses can be generated in the layer.

Thanks to its exceptionally high deposition speed, NIPHOS® 6500 is ideal as a drop-in variant. This means that the process can be integrated into existing reel-to-reel equipment with minimal effort, in most cases without even installing additional coating cells. This high level of compatibility enables rapid implementation of the process and immediately increases the productivity of existing equipment.

Smartly matched layer combinations of NIPHOS® 6500 with hard gold also enable significant gold savings and lead to significantly lower manufacturing costs while maintaining the high performance of the contact surfaces.



Advantages

- Very high deposition rate with over 11% phosphorus incorporation into the layer
- Layers in combination with hard gold to save gold on contact surfaces
- Coatings with extremely low tensile stress or even slight compressive stress
- X-ray amorphous or nanocrystalline layers with reduced tendency to crack
- Excellent corrosion protection
- Ideal for high-performance and jet systems, also suitable as a drop-in variant
- RoHS compliant
- pH-stable electrolyte with consistent process results

Applications

- Connectors
- Smartcards
- Leadframes

Technical Specifications

Electrolyte characteristics		Coating characteristics	
Electrolyte type	acidic	Coating	Nickel-phosphorus
Metal content	60 (55 - 70) g/l Ni 20 (15 - 25) g/l P	Purity	86 - 89 % Ni 11 - 14 %P
pH value	2.6 (2.4 - 2.8)	Phosphorus content	>11 % phosphorus with parameters and operating conditions specifically adjusted for this purpose
Operating temperature	65 (60 - 70) °C	Magnetic properties	Non-magnetic (>10.5 % P)
Current density range	10 A/dm ² (moderate flow) 38 A/dm ² (Jet-Lab with 500 l/h)	Hardness	approx. 500 - 550 HV as plated
Plating speed	1 µm/min at 10 A/dm ² (moderate flow) 2.9 µm/min at 38 A/dm ² (Jet-Lab with 500 l/h)	Abrasion	14.4 mg/1000 strokes (Bosch/Weinmann) 25 mg/1000 strokes 7 mg/1000 revolutions after WB (400 °C, 1h) (Taber Abraser, CS 10)
		Density of the coating	7.8 g/cm ³

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

