

Cobalt-free? There we go!

DIPSOL Europe GmbH presents heat-treatable cobalt-free passivations and new zinc-nickel alloy plating systems with an excellent covering power.

Due to the European Union's REACH regulation, various cobalt salts were discussed in late 2010 according to the controls by Substances of Very High Concern (SVHC) at the European chemical agency ECHA. Because of the possible restrictions of various cobalt salts during that time, the development of cobalt-free passivations were strong fostered and first systems were placed on the market.

The long-lasting standstill relating to the topic of cobalt as well as the technical restrictions of substitute systems caused that the cobalt-contained passivations still have a dominating role in the industry.

However, since the announcement of several automotive manufacturers concerning the proposed manufacturing units of electric vehicles in late 2016 which involves greater demand for cobalt, the price of cobalt increases significantly. Therefore, cobalt-free substitute systems are currently highly interesting from the economic point of view.

As a pioneer in this field, Dipsol Europe GmbH based in Düsseldorf is going to present their cobalt-free passivation product line at the „Surface Technology“ from June 5th to 7th 2018 in hall 1 at the Stuttgart Trade Fair. Previous tick-film passivations as well as black passivations for zinc and zinc alloy plating can be replaced without any limitations.

The results of the field trials have partially surpassed the previous results. This is basically achieved by the

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substitution of cobalt by an alternative metal and the implementation of colloidal silica in the passivation layer. Compared to the so called nano passivations which contain spherical colloidal silica, rather aliphatic colloids are directly incorporated into the passivation layer which lead to higher stability regarding the agglomeration and improves the process stability.

The systems are working at higher pH-values. The enrichment of zinc and thus the thickness in the interlayer region of the zinc passivation will be decreased and a thicker film with high contents of silicon oxide are generated.

Furthermore, the passivation layers incorporate less than 70% water so that crack-free closed layers with shorter drying time will be generated. The solubility of the passivation layer will be reduced through the implementation of a substitute material for cobalt and allows lower concentration of trivalent chromium in the passivation solution.

The new patent applied systems offered high performance in the first practical trials. Downstream thermal processings do not affect the corrosion resistance.

Another focus at the exhibition stand of Dipsol Europe GmbH at the Stuttgart Trade Fair will be the zinc-nickel

alloy plating process IZ-250/252YKN. This especially features high covering power for materials with poor coatability which is granted through the application of special complexing agents. Die-cast materials or hardened high carbonaceous materials are exemplary. For the plasticity which is referred to as ductility, the nickel co-deposition of alkaline zinc-nickel electrolyte based layer is limited from 12-16 %. The plasticity of the layers is restricted due to the high ratio in the 6-0-0-crystal structure in conventional procedures. The application of a new additive system implements a very low carbon content in the deposit layer. Also, the ratio of the 3-3-0-crystal structure increases the ductility compared with the previous procedures. Thus, a high corrosion resistance of the zinc-nickel layers can be performed for subsequently deformed parts. The procedure is applicable from semi-gloss to bright appearances.

Surface
Technology

GERMANY

June 5th-7th 2018
Trade Fair Stuttgart
HALL 1
BOOTH D27 (49)

Innovation made by DIPSOL

Cobalt-free passivation systems CF

- + black, transparent, silver-colored passivations for zinc and zinc alloys
- + highest corrosion protection values
- + heat-treatable
- + no sealing necessary

Alkaline zinc-nickel IZ-250/252YKN

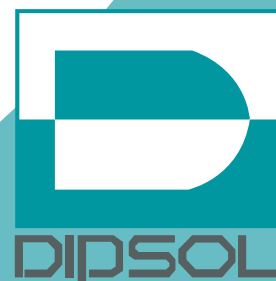
- + innovative complexing agent system with unsurpassed hiding power
- + excellent metal distribution
- + robust process with a large working range
- + even, semi-glossy to shiny finishes adjustable
- + high ductility of the layers

YOUR PARTNER FOR
THE FUNCTIONAL
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