



Chrome VI-free Coating | Nano Passivation A3K in accordance to ISO 4042

Background

Legal instructions like the "EU Scrap Vehicle Guideline" 2000/53/EG, the WEEE 2002/96/EG and the ROHS 2002/95/EG that prohibit the interdiction of Cr-6 in coatings, require the compliance with several critical values for components that are used among others for electronic and electrical equipment as well as in the automotive industry.

Solution

Quality, price and availability were the decision criteria when considering to offer our stock parts also in Cr-6-free coating. The nano passivation is the best alternative: It is a further development from the well established Cr-6-free blue and thick film passivation that provides a solid process.

Self-Healing Effect

Small damages made due to handling, transport or automatic delivery systems are adjusted by the self-healing effect (see picture 1). Thus, a high corrosion protection is guaranteed even after the assembly.

Corrosion Protection

Especially the automotive industry requires high corrosion protection parameters:

- + 96 hours white rust /168 hours red rust
- + is also valid 24 hours after heat treatments, 120 °C without the need of an additional sealing

Norms/Denotation

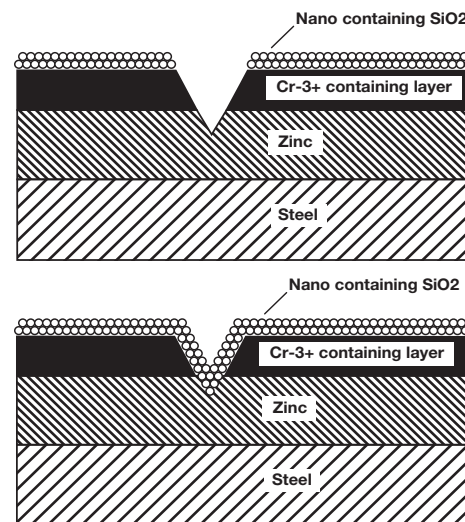
Until now, there is no existing standard for this coating. The VDA sheet 235-104 shows the requirements related to the corrosion resistance of Cr-6-free coatings, is valid. The basis for the definition and the evaluation of all further criteria of the nano passivation is the ISO 4042 standard (connecting components – galvanic coatings).

Further Characteristics

- + Colouring = silver with a light yellowish component
- + Coating thickness = ca. 300-500 nm
- + Passivation of zinc and zinc alloys possible without any problem

Alternatives

We certainly also offer other Cr-6-free coatings, like zinc-nickel or zinc-lamella. In comparison with the nano passivation, these coatings are expensive. Experience shows that zinc-lamella coating is not usable for specific component geometry.



The passivation consists of a Cr-3 and a SiO₂ containing layer in a Cr₃ matrix. Is the zinc-film is laid open by damages then a positive surface charge builds up. The particles of SiO₂ have a negative surface charge and move around to the damaged spot and cover it. This is the "self-healing" process.

At a glance:
the advantages of the nano passivation

Economic

- + Passivation of zinc (alloys) without any problem
- + More economic than other Cr-6-free economic coatings

Effective

- + Further development of the established blue and thick film passivation
- + Self-healing effect
- + Improved corrosion protection

Reliable

- + Defined according to ISO 4042
- + Solid process

Contact

Please contact our quality manager for any further questions:

Mrs. Hiltrud Heinrichs
Tel. +49 (0)6762 9305-65
hiltrud.heinrichs@heinrichs.de

