Title (en)

Multi-step corrosion-resistant treatment of metallic workpieces having at least partially zinc or zinc alloy surfaces

Title (de)

Mehrstufige korrosionsschützende Behandlung metallischer Bauteile, die zumindest teilweise Oberflächen von Zink oder Zinklegierungen aufweisen

Title (fr)

Traitement en plusieurs étapes de protection contre la corrosion des pièces métalliques ayant au moins partiellement une surface en zinc ou en alliages de zinc

Publication

EP 2503025 A1 20120926 (DE)

Application

EP 11159220 A 20110322

Priority

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Abstract (en)

Anticorrosive treatment of the metal surfaces of a component comprising at least partially surfaces of zinc or zinc alloys comprises contacting the component with an alkaline aqueous composition (A) and subsequently contacting with an acidic aqueous composition (B) for zinc phosphating, optionally with an intermediate rinsing step, and optionally with a preceding activation step. Anticorrosive treatment of the metal surfaces of a component comprising at least partially surfaces of zinc or zinc alloys comprises contacting the component with an alkaline aqueous composition (A) and subsequently contacting with an acidic aqueous composition (B) for zinc phosphating, optionally with an intermediate rinsing step, and optionally with a preceding activation step, where: the composition (A) comprises (a) at least 50 mg/l of iron(III) ions and (b) at least 100 mg/l of complexing agents (C) comprising organic compounds (C1) having at least one functional group of formula (-COOX), (-OPO 3X) and/or (-PO 3X) and/or condensed phosphates (C2); the composition (A) has a free alkalinity of at least one point, but less than 6 points and a pH value of 10.5-14; the composition (B) comprises (a1) 0.2-3 g/l of zinc(II) ions, (b1) 5-30 g/l of phosphate ions evaluated as phosphorus pentoxide and (c) less than 0.1 g/l of ionic compounds of metals of nickel and cobalt; and the composition (B) has a pH value of 2.5-3.6. X : H or an alkali metal and/or alkaline earth metal atom. An independent claim is included for a component, which at least partially contains zinc surfaces, where the zinc surfaces are coated by a two-layer system consisting of a first inner, iron-containing passive layer located on the zinc surface and a second outer, crystalline zinc phosphate layer located on the inner layer, the coating of the inner layer contains 20-150 mg/m 2>based on the element iron, and the coating of the outer layer is 0.5-3.5 g/m 2>.

Abstract (de)

Die vorliegende Erfindung betrifft das Gebiet der Phosphatierung zur korrosionsschützenden Vorbehandlung von Zinkoberflächen, wobei auf die Verwendung weitgehend Nickel- und Cobalt-freier Zinkphosphatierlösungen abgezielt wird. Mit der vorliegenden Erfindung wird eine Alternative zur Trikation-Zinkphosphatierung bereitgestellt, bei der die Zinkoberflächen eines Bauteils vor der Zinkphosphatierung zunächst mit einer alkalischen Zusammensetzung enthaltend Eisen(III)-Ionen passiviert und damit für eine weitgehend Nickel- und Cobalt-freie Zinkphosphatierung vorkonditioniert werden. Die Erfindung betrifft in einem weiteren Aspekt ein Bauteil, insbesondere eine Automobilkarosserie, das zumindest teilweise Oberflächen von Zink aufweist, wobei die Zinkoberflächen von einem Zweischichtsystem bestehend aus einer ersten inneren, auf der Zinkoberfläche aufliegenden Passivschicht enthaltend Eisen und einer zweiten äußeren, auf der inneren Schicht aufliegenden kristallinen Zinkphosphatschicht bedeckt sind.

IPC 8 full level

C23C 22/00 (2006.01); **B05D 7/14** (2006.01); **C23C 22/12** (2006.01); **C23C 22/34** (2006.01); **C23C 22/36** (2006.01); **C23C 22/60** (2006.01); **C23C 22/73** (2006.01); **C23C 22/83** (2006.01)

CPC (source: EP KR US)

B05D 7/14 (2013.01 - KR); **C23C 22/00** (2013.01 - KR); **C23C 22/12** (2013.01 - EP US); **C23C 22/34** (2013.01 - KR); **C23C 22/364** (2013.01 - EP US); **C23C 22/60** (2013.01 - EP KR US); **C23C 22/73** (2013.01 - EP US); **C23C 22/83** (2013.01 - EP KR US); **C23F 11/184** (2013.01 - US); Y10T 428/12799 (2015.01 - EP US)

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BA ME

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DOCDB simple family (application)

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