

Title (en)

MULTI-STAGE PRE-TREATMENT METHOD FOR METAL COMPONENTS HAVING ZINC AND IRON SURFACES

Title (de)

MEHRSTUFIGES VORBEHANDLUNGSVERFAHREN FÜR METALLISCHE BAUTEILE MIT ZINK- UND EISENOBERFLÄCHEN

Title (fr)

PROCÉDÉ DE PRÉTRAITEMENT À ÉTAPES MULTIPLES POUR DES COMPOSANTS MÉTALLIQUES PRÉSENTANT DES SURFACES EN ZINC ET EN FER

Publication

**EP 2507408 B1 20170719 (DE)**

Application

**EP 10776723 A 20101115**

Priority

- DE 102009047522 A 20091204
- EP 2010067448 W 20101115

Abstract (en)

[origin: WO2011067094A1] The invention relates to an acidic, aqueous, chromium-free composition (A) for the anti-corrosive treatment of steel and/or galvanized steel surfaces comprising metal ions (M) selected from ions at least of the elements nickel, cobalt, molybdenum, iron or tin and a multi-stage method applying the composition (A) for the anti-corrosive pre-treatment of metal components which have steel and/or galvanized steel surfaces. The invention further relates to metal surfaces of zinc or iron having a passive layer system comprising at least 30 mg/m<sup>2</sup> nickel and at least 10 mg/m<sup>2</sup> zircon, titanium and/or hafnium and sulfur, wherein nickel is present in metallic form at up to at least 30 At.-%, obtainable in a method according to the invention.

IPC 8 full level

**C23C 22/78** (2006.01); **C23C 18/31** (2006.01); **C23C 18/32** (2006.01); **C23C 22/34** (2006.01); **C25D 13/20** (2006.01)

CPC (source: EP US)

**C23C 22/34** (2013.01 - EP US); **C23C 22/78** (2013.01 - EP US)

Citation (examination)

WO 2009041616 A1 20090402 - NIPPON PAINT CO LTD [JP], et al

Cited by

WO2021116320A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

**DE 102009047522 A1 20110609**; BR 112012013126 A2 20170321; BR 112012013126 B1 20190827; CN 102639750 A 20120815; CN 102639750 B 20150311; EP 2507408 A1 20121010; EP 2507408 B1 20170719; ES 2642079 T3 20171115; HU E035823 T2 20180828; JP 2013513022 A 20130418; JP 5837885 B2 20151224; PL 2507408 T3 20171229; US 2012325110 A1 20121227; US 8715403 B2 20140506; WO 2011067094 A1 20110609

DOCDB simple family (application)

**DE 102009047522 A 20091204**; BR 112012013126 A 20101115; CN 201080054392 A 20101115; EP 10776723 A 20101115; EP 2010067448 W 20101115; ES 10776723 T 20101115; HU E10776723 A 20101115; JP 2012541391 A 20101115; PL 10776723 T 20101115; US 201213484848 A 20120531