

Title (en)

METHOD FOR MANUFACTURING AN OILED ZNALMG COATED SHEET AND CORRESPONDING SHEET

Title (de)

VERFAHREN ZUM HERSTELLEN EINES GEÖLTEN ZNALMG-BESCHICHTETEN BLECHS UND ENTSPRECHENDES BLECH

Title (fr)

PROCÉDÉ DE RÉALISATION D'UNE TÔLE À REVÊTEMENTS ZNALMG HUILÉS ET TÔLE CORRESPONDANTE

Publication

**EP 2841615 B1 20200624 (FR)**

Application

**EP 13727384 A 20130425**

Priority

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- IB 2013053286 W 20130425

Abstract (en)

[origin: WO2013160566A1] The method comprises at least the following steps: providing a steel substrate (3) having two faces (5), depositing a metal coating (7) on each face (5) by quenching the substrate (3) in a hot bath, cooling the metal coatings (7), altering the magnesium hydroxide or magnesium oxide layers formed on the outer surfaces (15) of the metal coatings (7), and depositing a layer of oil on the outer surfaces (15) of the metal coatings (7).

IPC 8 full level

**C23C 2/06** (2006.01); **C23C 2/26** (2006.01); **C23C 22/06** (2006.01)

CPC (source: CN EP KR US)

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Citation (examination)

- US 2010055344 A1 20100304 - OSTWALD CARMEN [DE], et al
- JP 2007131906 A 20070531 - NIPPON STEEL CORP

Citation (opposition)

Opponent : SALZGITTER FLACHSTAHL GMBH

- EP 1857567 A1 20071121 - THYSSENKRUPP STEEL AG [DE]
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Opponent : ThyssenKrupp Steel Europe AG

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- WO 2011032890 A1 20110324 - BWG BERGWERK WALZWERK [DE], et al
- DE 19740953 A1 19990318 - HENKEL KGAA [DE]
- EP 1350865 A2 20031008 - THYSSENKRUPP STAHL AG [DE]
- WO 2011052269 A1 20110505 - NIPPON STEEL CORP [JP], et al
- C.K. RIENER ET AL.: "Nano-characterisation of the surface of HDG Zn-Al-Mg-coated steel sheets", PROCEEDINGS / 8TH INTERNATIONAL CONFERENCE ON ZINC AND ZINC ALLOY COATED STEEL SHEET, GALVATECH 2011, 21 June 2011 (2011-06-21), Genova (Italy), pages 1 - 10, XP055650409
- ANONYMOUS: "Schmelztauchveredeltes Band und Blech", CHARAKTERISTISCHE MERKMALE 095, 2010, Düsseldorf, pages 1 - 30, XP055643288, ISSN: 0175-2006

Opponent : voestalpine Stahl GmbH

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- US 2010055344 A1 20100304 - OSTWALD CARMEN [DE], et al
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- "8th International Conference on Zinc and Zinc Alloy Coated Steel Sheet GALVATECH 2011", AIMNET.IT, 2011, XP055797508, ISBN: 978-88-85298-82-8

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DOCDB simple family (publication)

**WO 2013160566 A1 20131031**; BR 112014026681 A2 20170627; BR 112014026681 B1 20201020; CA 2871672 A1 20131031; CA 2871672 C 20170117; CN 104334764 A 20150204; CN 104334764 B 20170714; CN 107012419 A 20170804; CN 107012419 B 20191224; EP 2841615 A1 20150304; EP 2841615 B1 20200624; ES 2808663 T3 20210301; HU E051979 T2 20210428; IN 9954DEN2014 A 20150814;

JP 2015521233 A 20150727; JP 2017128810 A 20170727; JP 6143845 B2 20170607; JP 6487474 B2 20190320; KR 101656166 B1 20160908; KR 20150012256 A 20150203; MA 20150099 A1 20150331; MA 37452 B1 20160429; MX 2014013007 A 20150807; PL 2841615 T3 20201116; RU 2583193 C1 20160510; UA 114627 C2 20170710; US 10294558 B2 20190521; US 10865483 B2 20201215; US 2015125714 A1 20150507; US 2019169754 A1 20190606; WO 2013160871 A1 20131031

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**FR 2012050906 W 20120425**; BR 112014026681 A 20130425; CA 2871672 A 20130425; CN 201380028915 A 20130425; CN 201710085219 A 20130425; EP 13727384 A 20130425; ES 13727384 T 20130425; HU E13727384 A 20130425; IB 2013053286 W 20130425; IN 9954DEN2014 A 20141124; JP 2015507655 A 20130425; JP 2017027551 A 20170217; KR 20147032765 A 20130425; MA 37452 A 20141023; MX 2014013007 A 20120425; PL 13727384 T 20130425; RU 2014147319 A 20130425; UA A201412653 A 20130425; US 201314397108 A 20130425; US 201816207888 A 20181203