

Title (en)  
FLAT STEEL PRODUCT WITH AN AL COATING, METHOD FOR PRODUCING THE SAME, STEEL COMPONENT AND METHOD FOR PRODUCING THE SAME

Title (de)  
STAHLFLACHPRODUKT MIT EINER AL-BESCHICHTUNG, VERFAHREN ZU DESSEN HERSTELLUNG, STAHLBAUTEIL UND VERFAHREN ZU DESSEN HERSTELLUNG

Title (fr)  
PRODUIT PLAN EN ACIER DOTÉ D'UN REVÊTEMENT AL, SON PROCÉDÉ DE FABRICATION, COMPOSANT EN ACIER ET SON PROCÉDÉ DE FABRICATION

Publication  
**EP 4092141 A1 20221123 (DE)**

Application  
**EP 21175294 A 20210521**

Priority  
EP 21175294 A 20210521

Abstract (en)  
[origin: WO2022243397A1] The invention relates to a flat steel product for hot forming composed of a steel substrate (13) composed of a steel comprising 0.1-3% by weight of Mn and optionally up to 0.01% by weight of B and an Al-based protective coating (15) applied to the steel substrate (13). The iron-free mass fraction in the protective coating (15) of Mg as an additional alloying constituent is altogether less than 2.50% of Mg. In addition the iron-free mass fraction in the protective coating (15) of Mn as an additional alloying constituent is altogether more than 0.30% of Mn and the iron-free mass fraction in the protective coating (15) of Si as an additional alloying constituent is altogether less than 1.80%.

Abstract (de)  
Die Erfindung betrifft ein Stahlflachprodukt für eine Warmformung, das aus einem Stahlsubstrat (13), das aus einem Stahl, der 0,1 - 3 Gew.-% Mn und optional bis zu 0,01 Gew.-% B aufweist, und einem auf das Stahlsubstrat (13) aufgetragenen Schutzüberzug (15) auf Basis von Al besteht. Dabei beträgt der eisenlose Massenanteil des Schutzüberzugs (15) von Mg als zusätzlichem Legierungsbestandteil in Summe weniger als 2,50 % Mg. Zudem beträgt der eisenlose Massenanteil des Schutzüberzugs (15) von Mn als zusätzlichem Legierungsbestandteil in Summe mehr als 0,30 % Mn und der eisenlose Massenanteil des Schutzüberzugs (15) von Si als zusätzlichem Legierungsbestandteil beträgt in Summe weniger als 1,80 %.

IPC 8 full level  
**C21D 1/26** (2006.01); **C21D 1/28** (2006.01); **C21D 1/673** (2006.01); **C21D 6/00** (2006.01); **C21D 7/13** (2006.01); **C21D 8/04** (2006.01); **C21D 9/48** (2006.01); **C22C 21/00** (2006.01); **C22C 21/04** (2006.01); **C22C 21/06** (2006.01); **C22C 21/08** (2006.01); **C23C 2/12** (2006.01); **C23C 2/28** (2006.01); **C23C 30/00** (2006.01)

CPC (source: EP US)  
**C21D 1/26** (2013.01 - EP); **C21D 1/28** (2013.01 - EP); **C21D 1/673** (2013.01 - EP); **C21D 6/005** (2013.01 - EP); **C21D 7/13** (2013.01 - EP); **C21D 8/0484** (2013.01 - EP); **C21D 9/48** (2013.01 - EP); **C22C 21/00** (2013.01 - EP); **C22C 21/04** (2013.01 - EP); **C22C 21/06** (2013.01 - EP); **C22C 21/08** (2013.01 - EP); **C22C 38/001** (2013.01 - US); **C22C 38/002** (2013.01 - US); **C22C 38/008** (2013.01 - US); **C22C 38/02** (2013.01 - US); **C22C 38/04** (2013.01 - US); **C22C 38/06** (2013.01 - US); **C22C 38/12** (2013.01 - US); **C22C 38/14** (2013.01 - US); **C22C 38/42** (2013.01 - US); **C22C 38/44** (2013.01 - US); **C22C 38/46** (2013.01 - US); **C22C 38/48** (2013.01 - US); **C22C 38/50** (2013.01 - US); **C22C 38/54** (2013.01 - US); **C23C 2/12** (2013.01 - EP US); **C23C 2/28** (2013.01 - EP); **C23C 2/285** (2013.01 - US); **C23C 2/29** (2022.08 - US); **C23C 2/40** (2013.01 - US); **C23C 30/00** (2013.01 - EP)

Citation (applicant)

- EP 0971044 B1 20030514 - LORRAINE LAMINAGE [FR]
- EP 2086755 A1 20090812 - ARCELORMITTAL FRANCE [FR]

Citation (search report)

- [XYI] JP H05171393 A 19930709 - SUMITOMO METAL IND
- [IY] JP S5623265 A 19810305 - NISSHIN STEEL CO LTD
- [Y] EP 2993248 A1 20160309 - THYSENKRUPP STEEL EUROPE AG [DE], et al
- [A] EP 1219719 A1 20020703 - NISSHIN STEEL CO LTD [JP]
- [Y] CN 111575622 A 20200825 - MAANSHAN IRON & STEEL CO LTD

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

Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**EP 4092141 A1 20221123**; CN 117355620 A 20240105; EP 4341454 A1 20240327; US 2024229214 A1 20240711; WO 2022243397 A1 20221124

DOCDB simple family (application)  
**EP 21175294 A 20210521**; CN 202280036669 A 20220518; EP 2022063495 W 20220518; EP 22729619 A 20220518; US 202218561008 A 20220518