

Title (en)  
HOT-DIPPED GALVANIZED STEEL SHEET

Title (de)  
FEUERVERZINKTES STAHLBLECH

Title (fr)  
TÔLE D'ACIER ALLIÉ GALVANISÉE PAR IMMERSION À CHAUD

Publication  
**EP 4130319 A1 20230208 (EN)**

Application  
**EP 21776766 A 20210323**

Priority  
• JP 2020057273 A 20200327  
• JP 2021011993 W 20210323

Abstract (en)  
A hot-dip zinc-plated steel sheet includes a steel sheet, a boundary layer that is provided on a surface of the steel sheet, and a hot-dip zinc-plated layer that is provided on a surface of the boundary layer. In a surface layer region of the steel sheet, an average grain size is 4.0  $\mu\text{m}$  or less and a standard deviation of grain sizes is 2.0  $\mu\text{m}$  or less. In the boundary layer, a maximum Al concentration is 0.30 mass % or more.

IPC 8 full level  
**C22C 38/00** (2006.01); **C21D 1/18** (2006.01); **C21D 9/00** (2006.01); **C21D 9/46** (2006.01); **C22C 38/58** (2006.01); **C23C 2/06** (2006.01)

CPC (source: EP KR US)  
**B32B 15/013** (2013.01 - US); **C21D 8/0205** (2013.01 - EP); **C21D 8/021** (2013.01 - EP); **C21D 8/0226** (2013.01 - EP);  
**C21D 8/0278** (2013.01 - EP); **C21D 9/46** (2013.01 - EP); **C22C 38/001** (2013.01 - US); **C22C 38/002** (2013.01 - EP US);  
**C22C 38/005** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP); **C22C 38/06** (2013.01 - US);  
**C22C 38/08** (2013.01 - EP US); **C22C 38/10** (2013.01 - US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP);  
**C22C 38/22** (2013.01 - EP); **C22C 38/24** (2013.01 - EP); **C22C 38/26** (2013.01 - EP); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP);  
**C22C 38/38** (2013.01 - EP US); **C22C 38/44** (2013.01 - KR); **C22C 38/46** (2013.01 - KR); **C22C 38/48** (2013.01 - KR);  
**C22C 38/50** (2013.01 - EP KR); **C22C 38/54** (2013.01 - KR); **C22C 38/58** (2013.01 - EP KR); **C23C 2/06** (2013.01 - EP KR)

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 4130319 A1 20230208**; **EP 4130319 A4 20230315**; CN 115298345 A 20221104; CN 115298345 B 20240611; JP 7348577 B2 20230921;  
JP WO2021193632 A1 20210930; KR 20220139985 A 20221017; MX 2022011603 A 20221018; US 2023093068 A1 20230323;  
WO 2021193632 A1 20210930

DOCDB simple family (application)  
**EP 21776766 A 20210323**; CN 202180023035 A 20210323; JP 2021011993 W 20210323; JP 2022510548 A 20210323;  
KR 20227031750 A 20210323; MX 2022011603 A 20210323; US 202117909231 A 20210323