

## Title (en)

AL-SI-CR-PLATED STEEL SHEET EXCELLENT IN CORROSION RESISTANCE AND PRODUCTION THEREOF

## Publication

**EP 0584364 A4 19940817 (EN)**

## Application

**EP 93903330 A 19930209**

## Priority

- JP 3475993 A 19930129
- JP 3476093 A 19930129
- JP 5901692 A 19920212
- JP 5901792 A 19920212
- JP 7356092 A 19920225
- JP 9300163 W 19930209

## Abstract (en)

[origin: WO9316210A1] A plated steel sheet having improved corrosion and heat resistances is produced by supplying chromium to an Al-Si plating layer formed on the surface of a steel sheet by hot dipping. The chromium source to be used comprises a chromium coating layer formed on the surface of a nonplated sheet by electroplating, vacuum deposition, etc. The wettability of the chromium coating layer with a plating metal can be improved by activating the surface of the layer by plasma etching, ion beam etching, etc., before dipping a chromium-coated steel sheet in a hot dipping bath. The plating layer L formed on the steel substrate S has a layered structure composed of the first layer L1? based on chromium, the second layer L2? based on Cr-Al-Si system and the third layer L3? based on Al-Si-Cr system, when plating is conducted under the conditions of a thick chromium coating layer and a relatively suppressed diffusion of chromium. Since the plating layer L contains chromium, the resultant plated steel sheet is far more excellent in corrosion and heat resistances than the conventional Al-Si-plated steel sheets.

## IPC 1-7

**C23C 2/12**

## IPC 8 full level

**C23C 2/02** (2006.01); **C23C 2/12** (2006.01)

## CPC (source: EP US)

**C23C 2/0034** (2022.08 - EP US); **C23C 2/00344** (2022.08 - EP US); **C23C 2/0035** (2022.08 - EP US); **C23C 2/0038** (2022.08 - EP US); **C23C 2/004** (2022.08 - EP US); **C23C 2/022** (2022.08 - EP US); **C23C 2/024** (2022.08 - EP US); **C23C 2/026** (2022.08 - EP US); **C23C 2/12** (2013.01 - EP)

## Citation (search report)

- [A] DE 698897 C 19401119 - BERNHARD BERGHAUS
- [A] EP 0397952 A1 19901122 - BATTELLE MEMORIAL INSTITUTE [CH]
- [A] EP 0467749 A1 19920122 - LORRAINE LAMINAGE [FR], et al
- [A] US 3656919 A 19720418 - LUCAS JOSEPH G, et al
- [A] DATABASE WPI Derwent World Patents Index; AN 83-21372K C09, "corrosion resistant molten aluminium plated steel plates"
- See references of WO 9316210A1

## Cited by

EP0760399A4; WO2020188529A1; WO2020188321A1; EP3942086B1

## Designated contracting state (EPC)

DE FR GB

## DOCDB simple family (publication)

**WO 9316210 A1 19930819**; CA 2107560 A1 19930813; CA 2107560 C 19990504; DE 69305458 D1 19961121; DE 69305458 T2 19970306; EP 0584364 A1 19940302; EP 0584364 A4 19940817; EP 0584364 B1 19961016; KR 0166099 B1 19990115

## DOCDB simple family (application)

**JP 9300163 W 19930209**; CA 2107560 A 19930209; DE 69305458 T 19930209; EP 93903330 A 19930209; KR 930703118 A 19931012