

Title (en)

Zinc-containing metal-plated composite steel article and method of producing the same.

Title (de)

Verbundstahlwerkstück plattiert mit Zink-enthaltenden Metall und Verfahren zur seiner Herstellung.

Title (fr)

Article composite d'acier plaqué d'un métal contenant du zinc et procédé de production.

Publication

EP 0653502 A2 19950517 (EN)

Application

EP 94308277 A 19941110

Priority

- JP 28257093 A 19931111
- JP 28257493 A 19931111
- JP 14473594 A 19940627

Abstract (en)

A zinc-containing metal-plated composite steel article having an enhanced paint-coating property has 0.3 to 3.0 g/m² of a zinc phosphate composite coating layer formed on a zinc-containing metal-plated steel substrate by a cathodic electrolysis treatment or a first chemical conversion treatment and including zinc and phosphorus in a weight ratio Zn/P of 2.504:1 to 3.166:1 and 0.06 to 9.0% by weight of Fe, Co, Ni, Ca, Mg and/or Mn, and a phosphate chemical conversion layer formed on the composite coating layer by a second chemical conversion treatment and including fine phosphate crystals.

IPC 1-7

C23C 22/73; **C25D 11/36**; **C23C 22/36**; **C23C 22/18**; **C23C 22/22**; **C23C 22/13**

IPC 8 full level

C23C 22/13 (2006.01); **C23C 22/18** (2006.01); **C23C 22/22** (2006.01); **C23C 22/36** (2006.01); **C23C 22/73** (2006.01); **C25D 11/36** (2006.01)

CPC (source: EP KR)

C23C 22/05 (2013.01 - KR); **C23C 22/13** (2013.01 - EP); **C23C 22/182** (2013.01 - EP); **C23C 22/22** (2013.01 - EP); **C23C 22/362** (2013.01 - EP); **C23C 22/73** (2013.01 - EP); **C25D 11/36** (2013.01 - EP)

Cited by

US6322906B1; CN103769432A; EP1550740A1; CN113478926A; EP3081664A4; US6753095B1; EP1223233A4; AU745693B2; AU745693C; EP1067212A1; ES2472420A1; GB2331997A; GB2331997B; AT412095B; DE19781959B4; US6596414B1; EP2644739A1; CN106757280A; US2022275481A1; US6376092B1; US6461450B1; WO0121853A1; WO9945171A1; WO9954523A1; US6555249B1; US9970116B2; US6168674B1; US9771652B2; WO2008015051A1; WO9809006A1; WO0236854A1; WO9720085A1; WO2013144065A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 0653502 A2 19950517; **EP 0653502 A3 19950809**; KR 100215263 B1 19990816; KR 950014360 A 19950616

DOCDB simple family (application)

EP 94308277 A 19941110; KR 19940029625 A 19941111