

Title (en)
Process for facilitating cold forming.

Title (de)
Verfahren zur Erleichterung der Kaltumformung.

Title (fr)
Procédé facilitant la déformation à froid.

Publication
EP 0613964 B1 19951108 (DE)

Application
EP 94200388 A 19940215

Priority
DE 4306446 A 19930302

Abstract (en)
[origin: EP0613964A1] In a process for facilitating the non-cutting cold forming of iron materials by application of a phosphate coating, the iron materials are dipped (immersed) into a phosphating solution which is free of elements of the sixth subgroup of the Periodic Table of the Elements, free of nitrogen compounds, is preferably also free of nickel, contains from 5 to 20 g/l of zinc from 1 to 15 g/l of magnesium from 10 to 26 g/l of phosphate (calculated as P₂O₅) from 1 to 15 g/l of fluoroborate (calculated as BF₄) from 1 to 7 g/l of chlorate (calculated as ClO₃), preferably also from 5 to 40 g/l of sulphate (calculated as SO₄) and in which the weight ratio of Zn : Mg : BF₄ is set to a value in the range of 1 : (0.15 to 1) : (0.15 to 1).

IPC 1-7
C23C 22/36; **C23C 22/14**

IPC 8 full level
C23C 22/14 (2006.01); **C23C 22/36** (2006.01)

CPC (source: EP KR US)
C23C 22/14 (2013.01 - EP KR US); **C23C 22/362** (2013.01 - KR); **C23C 22/368** (2013.01 - EP KR US)

Cited by
US8349092B2; WO2004099468A1

Designated contracting state (EPC)
AT BE CH DE ES FR GB IT LI NL SE

DOCDB simple family (publication)
EP 0613964 A1 19940907; **EP 0613964 B1 19951108**; AT E130052 T1 19951115; CN 1040779 C 19981118; CN 1093416 A 19941012; DE 4306446 A1 19940908; DE 59400038 D1 19951214; ES 2081224 T3 19960216; JP H06322550 A 19941122; KR 100324862 B1 20020620; KR 940021761 A 19941019; TW 270901 B 19960221; US 5415701 A 19950516; ZA 941457 B 19950904

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