

Title (en)

Acidic, aqueous phosphate-coating solutions for use in a process for phosphate-coating metal surfaces.

Title (de)

Saure, wässrige Phosphatüberzugslösungen für ein Verfahren zum Phosphatbeschichten metallischer Oberfläche.

Title (fr)

Solutions aqueuses acides de phosphatation pour leur utilisation dans un procédé de phosphatation de surfaces métalliques.

Publication

**EP 0228151 A1 19870708 (EN)**

Application

**EP 86306622 A 19860827**

Priority

US 77003185 A 19850827

Abstract (en)

Acidic, aqueous, substantially chlorate-free phosphate solution contains in S/L:- 0.1-1.5 Zn ions; 5-50 phosphate ions; 0.2-4 Mn ions; min 0.05 fluoride ions; less than 0.5 chloride ions; and at least one of the following phosphate accelerators:- 0.01-0.2 nitrite ions; 1-15 nitrate ions; 0.5-5 H<sub>2</sub>O<sub>2</sub> (based on 100% H<sub>2</sub>O<sub>2</sub>); 0.05-2 m-nitrobenzene-sulphonate ions; 0.05-2 m-nitrobenzoate ions and 0.05-2 p-nitrophenol.

An acidic aqueous phosphate solution for phosphating a metal surface, particularly to avoid white spots, is substantially chlorate-free and comprises:

a) from about 0.1 to about 1.5 g/l of zinc ion, b) from about 5 to about 50 g/l of phosphate ion, c) from about 0.2 to about 4 g/l of manganese ion, d) at least about 0.05 g/l of a fluoride ion, e) less than 0.5 g/l of chloride ion, and f) at least one of the following phosphating accelerators: i) from about 0.01 to about 0.2 g/l of nitrite ion, ii) from about 1 to about 15 g/l of nitrate ion, iii) from about 0.5 to about 5 g/l of hydrogen peroxide (based on 100% H<sub>2</sub>O<sub>2</sub>), iv) from about 0.05 to about 2 g/l of m-nitrobenzene-sulfonate ion, v) from about 0.05 to about 2 g/l of m-nitrobenzoate ion, and vi) from about 0.05 to about 2 g/l of p-nitrophenol.

IPC 1-7

**C23C 22/36**

IPC 8 full level

**C23C 22/36** (2006.01)

CPC (source: EP)

**C23C 22/364** (2013.01); **C23C 22/365** (2013.01)

Citation (applicant)

- JP S55107784 A 19800819 - NIPPON PAINT CO LTD
- JP S55145180 A 19801112 - NIPPON PAINT CO LTD
- JP S55152183 A 19801127 - NIPPON PAINT CO LTD
- JP S57152472 A 19820920 - NIPPON PAINT CO LTD

Citation (search report)

- [X] GB 2148951 A 19850605 - PYRENE CHEMICAL SERVICES LTD
- [X] EP 0106459 A1 19840425 - NIPPON PAINT CO LTD [JP]
- [X] WO 8503089 A1 19850718 - FORD WERKE AG [DE], et al
- [A] EP 0123980 A1 19841107 - AMCHEM PROD [US]

Cited by

KR100841156B1; EP0974682A1; EP0381190A1; US5868820A; US5238506A; US6090224A; EP0401616A1; CN104032293A; DE10109480A1; JPH03267378A; US5714047A; EP0439377A1; AU778285B2; CN100334255C; EP0258922A1; US5597465A; AU678284B2; US5792283A; CN1041001C; US6171409B1; WO0166826A1; WO9015167A1; WO9507370A1; WO9102829A3; US7208053B2; US6447662B1; WO9504842A1; WO9012901A1

Designated contracting state (EPC)

AT BE DE FR GB IT NL SE

DOCDB simple family (publication)

**EP 0228151 A1 19870708; EP 0228151 B1 19931222**; AT E160592 T1 19971215; AT E99002 T1 19940115; DE 3650659 D1 19980108; DE 3650659 T2 19980702; DE 3689442 D1 19940203; DE 3689442 T2 19940616; EP 0544650 A1 19930602; EP 0544650 B1 19971126; HK 1007771 A1 19990423; HK 1012681 A1 19990806; SG 52645 A1 19980928

DOCDB simple family (application)

**EP 86306622 A 19860827**; AT 86306622 T 19860827; AT 93200125 T 19860827; DE 3650659 T 19860827; DE 3689442 T 19860827; EP 93200125 A 19860827; HK 98106842 A 19980626; HK 98113999 A 19981218; SG 1996007305 A 19860827