

## Title (en)

Treatment solution for generating chrome and cobalt-free black conversion coatings

## Title (de)

Behandlungslösung zur Erzeugung Chrom- und Cobalt-freier schwarzer Konversionsschichten

## Title (fr)

Solution de traitement pour la production de couches de conversion noires sans chrome ni cobalt

## Publication

**EP 2309027 A1 20110413 (DE)**

## Application

**EP 09171140 A 20090923**

## Priority

EP 09171140 A 20090923

## Abstract (en)

Treatment solution for producing black chromium- and cobalt-free conversion layers, comprises: (a) at least one complex, water-soluble metal cation selected from oxo cations of the formula  $M'cd^{+}$ , and/or complex halogen ions of the formula  $M''Xab^{-}$ ; (b) at least one oxidant; and (c) at least one organic sulfur compound. Treatment solution for producing black chromium- and cobalt-free conversion layers, comprises: (a) at least one complex, water-soluble metal cation selected from oxo cations of the formula  $M'cd^{+}$ , and/or complex halogen ions of the formula  $M''Xab^{-}$ ; (b) at least one oxidant; and (c) at least one organic sulfur compound selected from compounds of the Formula 1:  $HS-R1-COOR2$ , and Formula 2:  $R5-OOC-R3-S-S-R4-COOR6$ . c : an integer from 1-3; d : an integer from 1-3; X : selected from F, Cl, Br and I; a : an integer from 3-6; b : an integer from 1-4; and M' and M'' : selected from Mn, V, Ti, W, Mo, Zr, B, Si and Al. R1 : selected from 1-8C-alkyl, linear and branched, and aryl; R2 : selected from H, NH<sub>4</sub><sup>+</sup>, Li<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup> and 1-4C-alkyl, linear and branched; R3 and R4 : selected independently from 1-8C-alkyl, linear and branched and aryl; and R5 and R6 : selected independently from H, NH<sub>4</sub><sup>+</sup>, Li<sup>+</sup>, Na<sup>+</sup>, and 1-4C-alkyl, linear and branched.

## Abstract (de)

Die Erfindung betrifft Chrom- und Cobalt-freie Behandlungslösungen zur Erzeugung schwarzer korrosionsschützender Überzugsschichten. Die Erfindungsgemäße Behandlungslösung enthält Oxo-Kationen, oder Halogen-Komplexion oder Gemische aus Oxo-Kationen und Halogen-Komplexion, ein Oxidationsmittel und eine organische Schwefelverbindung.

## IPC 8 full level

**C23C 22/34** (2006.01); **C23C 22/53** (2006.01)

## CPC (source: EP KR US)

**C23C 22/34** (2013.01 - EP KR US); **C23C 22/53** (2013.01 - EP KR US)

## Citation (applicant)

- WO 2008119675 A1 20081009 - ATOTECH DEUTSCHLAND GMBH [DE], et al
- EP 1970470 A1 20080917 - ATOTECH DEUTSCHLAND GMBH [DE]
- JP 2005206872 A 20050804 - NIPPON HYOMEN KAGAKU KK
- JP 2005187925 A 20050714 - TAIHO KK
- JP 2005187838 A 20050714 - NIHON PARKERIZING

## Citation (search report)

- [A] JP 2005187838 A 20050714 - NIHON PARKERIZING
- [A] EP 1970470 A1 20080917 - ATOTECH DEUTSCHLAND GMBH [DE]
- [A] EP 0405340 A1 19910102 - HENKEL CORP [US]

## Cited by

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## Designated contracting state (EPC)

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## DOCDB simple family (application)

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