

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 B1 20110921 (DE)

Application

EP 09171140 A 20090923

Priority

EP 09171140 A 20090923

Abstract (en)

[origin: EP2309027A1] 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 $M^{\prime}cd^{+}$, and/or complex halogen ions of the formula $M^{\prime\prime}X^{ab-}$; (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 $M^{\prime}cd^{+}$, and/or complex halogen ions of the formula $M^{\prime\prime}X^{ab-}$; (b) at least one oxidant; and (c) at least one organic sulfur compound selected from compounds of the Formula 1: $HS-R^{1>}COOR^{2>}$, and Formula 2: $R^{5>}OOC-R^{3>}S-S-R^{4>}COOR^{6>}$. 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^{\prime} and $M^{\prime\prime}$: selected from Mn, V, Ti, W, Mo, Zr, B, Si and Al. $R^{1>}$: selected from 1-8C-alkyl, linear and branched, and aryl; $R^{2>}$: selected from H, NH_4^{+} , Li^{+} , Na^{+} , K^{+} and 1-4C-alkyl, linear and branched; $R^{3>}$ and $R^{4>}$: selected independently from 1-8C-alkyl, linear and branched and aryl; and $R^{5>}$ and $R^{6>}$: selected independently from H, NH_4^{+} , Li^{+} , Na^{+} , and 1-4C-alkyl, linear and branched.

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)

Cited by

DE102012017438A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)

EP 2309027 A1 20110413; **EP 2309027 B1 20110921**; AT E525495 T1 20111015; BR 112012006456 A2 20170718; BR 112012006456 B1 20210209; CN 102575354 A 20120711; CN 102575354 B 20140219; ES 2372146 T3 20120116; JP 2013505362 A 20130214; JP 5669848 B2 20150218; KR 101692093 B1 20170102; KR 20120073239 A 20120704; US 2012186702 A1 20120726; US 9005373 B2 20150414; WO 2011036058 A1 20110331

DOCDB simple family (application)

EP 09171140 A 20090923; AT 09171140 T 20090923; BR 112012006456 A 20100908; CN 201080042409 A 20100908; EP 2010063178 W 20100908; ES 09171140 T 20090923; JP 2012530209 A 20100908; KR 20127007303 A 20100908; US 201013394362 A 20100908