

Title (en)

NICKEL-CHROMIUM NANOLAMINATE COATING OR CLADDING HAVING HIGH HARDNESS

Title (de)

NICKEL-CHROM-NANOLAMINATBESCHICHTUNG ODER -KASCIERUNG MIT HOHER HÄRTE

Title (fr)

REVÊTEMENT NANOSTRATIFIÉ OU GAINAGE DE NICKEL-CHROME PRÉSENTANT UNE DURETÉE ÉLEVÉE

Publication

EP 3194641 A4 20180509 (EN)

Application

EP 15842267 A 20150918

Priority

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- US 2015050910 W 20150918

Abstract (en)

[origin: WO2016044708A1] Electrodeposited nanolaminate materials having layers comprised of nickel and/or chromium with high hardness and processes for making them are disclosed. The uniform or substantially uniform appearance, chemical resistance, and high hardness of embodiments of the nanolaminate NiCr materials described herein render them useful for a variety of purposes including wear (abrasion) resistant barrier coatings or claddings for use in decorative as well as demanding physical, structural and chemical environments.

IPC 8 full level

C25D 5/02 (2006.01); **C25D 5/08** (2006.01); **C25D 5/14** (2006.01)

CPC (source: EP US)

C25D 1/00 (2013.01 - EP US); **C25D 1/02** (2013.01 - US); **C25D 3/562** (2013.01 - EP US); **C25D 5/14** (2013.01 - EP US); **C25D 5/18** (2013.01 - EP US); **C25D 5/611** (2020.08 - EP US); **C25D 5/623** (2020.08 - EP US); **C25D 5/627** (2020.08 - EP US)

Citation (search report)

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- [A] HUANG ET AL: "Characterization of Cr-Ni multilayers electroplated from a chromium(III)-nickel(II) bath using pulse current", SCRIPTA MATERIALIA, ELSEVIER, AMSTERDAM, NL, vol. 57, no. 1, 24 April 2007 (2007-04-24), pages 61 - 64, XP022044412, ISSN: 1359-6462, DOI: 10.1016/J.SCRIPTAMAT.2007.02.004
- [A] HUANG C A ET AL: "Hardness variation and annealing behavior of a Cr-Ni multilayer electroplated in a trivalent chromium-based bath", SURFACE AND COATINGS TECHNOLOGY, ELSEVIER BV, AMSTERDAM, NL, vol. 203, no. 20-21, 15 July 2009 (2009-07-15), pages 3320 - 3324, XP026142653, ISSN: 0257-8972, [retrieved on 20090418], DOI: 10.1016/J.SURFCOAT.2009.04.011
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- See references of WO 2016044708A1

Designated contracting state (EPC)

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WO 2016044708 A1 20160324; AR 102341 A1 20170222; BR 112017005414 A2 20171212; CA 2961504 A1 20160324; CA 2961504 C 20221213; CN 106795641 A 20170531; CN 106795641 B 20191105; EA 201790645 A1 20170831; EP 3194641 A1 20170726; EP 3194641 A4 20180509; EP 3194641 B1 20211222; EP 3194641 B8 20220209; SA 517381127 B1 20220327; US 2017191179 A1 20170706

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