Title (en)

A METHOD FOR ELECTROPLATING WITH A REFRACTORY METAL

Title (de)

VERFAHREN ZUR ELEKTROPLATTIERUNG MIT EINEM FEUERFESTEN METALL

Title (fr)

PROCEDE D'ELECTRODEPOSITION PAR METAL REFRACTAIRE

Publication

EP 0975824 A1 20000202 (EN)

Application

EP 97935713 A 19970902

Priority

- IB 9701046 W 19970902
- RU 97106309 A 19970417

Abstract (en)

[origin: WO9846809A1] The invention relates to electroplating with refractory metal, mainly tantalum and niobium, from molten salts and can be applied in chemical, metallurgical, pharmaceutical, medicinal industries, turbine manufacture, air- and spacecraft, and other areas of engineering, in creation of corrosion-resistant and barrier coatings. The essence of the invention is that when the article to be coated is immersed into a molten electrolyte containing fluorides of both refractory and alkali metal and a eutectic melt of sodium, potassium and cesium chlorides, the article is warmed up to the working temperature of the electrolyte of 700-770 DEG C whereupon direct or reverse electric current is passed through the electrolyte, the current parameters being adjusted so that quantity of electricity in the anodic Qa, and cathodic Qc, parts of the electroplating cycle corresponds to the ratio O</=Qa/Qc < 0.9. To improve the article quality it is desirable that the weight of the electrolyte exceeds that of the article by 5 times or more. The technical result attained is the production of uniform-thickness, high quality tantalum or niobium coatings on articles for industrial applications made of conventional materials. Open porosity of the resulting coatings is not higher than 0.001 %, adhesion to the substrate is as high as 8 kg/mm<2>.

IPC 1-7

C25D 3/66; C25D 5/18

IPC 8 full level

C25D 3/66 (2006.01); **C25D 5/18** (2006.01)

CPC (source: EP US)

C25D 3/66 (2013.01 - EP US); **C25D 5/18** (2013.01 - EP US); **C25D 5/605** (2020.08 - EP US); **C25D 5/617** (2020.08 - EP US); **C25D 5/623** (2020.08 - EP US)

Citation (search report)

See references of WO 9846809A1

Designated contracting state (EPC)

DE DK ES FR GB IT SE

DOCDB simple family (publication)

WO 9846809 A1 19981022; AU 3860597 A 19981111; CA 2288658 A1 19981022; EP 0975824 A1 20000202; RU 2121532 C1 19981110

DOCDB simple family (application)

IB 9701046 W 19970902; AU 3860597 A 19970902; CA 2288658 A 19970902; EP 97935713 A 19970902; RU 97106309 A 19970417