

Title (en)

ELECTRICALLY CONDUCTIVE DIAMOND ELECTRODE, AND SULFURIC ACID ELECTROLYSIS METHOD AND SULFURIC ACID ELECTROLYSIS APPARATUS EACH UTILIZING SAME

Title (de)

ELEKTRISCH LEITFÄHIGE DIAMANTELEKTRODE SOWIE SCHWEFELSÄURE-ELEKTROLYSEVERFAHREN UND SCHWEFELSÄURE-ELEKTROLYSEVORRICHTUNG DAMIT

Title (fr)

ÉLECTRODE DE DIAMANT CONDUCTRICE DE L'ÉLECTRICITÉ ET PROCÉDÉ D'ÉLECTROLYSE D'ACIDE SULFURIQUE ET APPAREIL D'ÉLECTROLYSE D'ACIDE SULFURIQUE UTILISANT CHACUN L'ÉLECTRODE

Publication

EP 2657370 A4 20160824 (EN)

Application

EP 11851375 A 20111121

Priority

- JP 2010285100 A 20101221
- JP 2011076781 W 20111121

Abstract (en)

[origin: EP2657370A1] The present invention provides an electrically conductive diamond electrode comprising an electrically conductive substrate and an electrically conductive diamond layer coated on the surface of the electrically conductive substrate, featuring that: 1) the thickness of the electrically conductive diamond layer is $1\frac{1}{4}25\mu\text{m}$, 2) the potential window fulfills Equation (1) and 3) the ratio (A/B) of the diamond component A and the non-diamond component B by the Raman spectroscopic analysis fulfills Equation (2). $2.1\text{ V} \leq \text{potential window} \leq 3.5\text{ V}$, $1.5 < A/B \leq 6.5$ A: Intensity at the wave number 1300cm^{-1} by the Raman spectroscopic analysis B: Intensity at the wave number 1500cm^{-1} by the Raman spectroscopic analysis. The present invention intends to provide an electrically conductive diamond electrode with a high durability as electrode, which achieves a high current efficiency of oxidizing agent at a low cell voltage by controlling the thickness of the electrically conductive diamond layer and crystallinity of the electrically conductive diamond, a sulfuric acid electrolysis method and an electrolysis apparatus of sulfuric acid applying the electrically conductive diamond electrode.

IPC 8 full level

C25B 1/30 (2006.01); **C25B 9/19** (2021.01)

CPC (source: EP KR US)

C25B 1/29 (2021.01 - EP KR US); **C25B 1/30** (2013.01 - EP KR US); **C25B 9/19** (2021.01 - KR); **C25B 11/043** (2021.01 - KR); **C25B 11/075** (2021.01 - EP US); **C25B 11/083** (2021.01 - KR)

Citation (search report)

- [Y] US 2007215460 A1 20070920 - TOJO TETSURO [JP], et al
- [Y] US 2008271911 A1 20081106 - OGURE NAOAKI [JP], et al
- See references of WO 2012086352A1

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Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

DOCDB simple family (publication)

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EP 11851375 A 20111121; CN 201180068101 A 20111121; JP 2010285100 A 20101221; JP 2011076781 W 20111121; KR 20137019257 A 20111121; TW 100145902 A 20111213; US 201113993205 A 20111121