Title (en)

Method for producing an ammonium or alkali metal peroxodisulfate in a non-separated electrolysis area

Title (de)

Verfahren zur Herstellung eines Ammonium- oder Akalimetallperosodisulfats im ungeteilten Elektrolyseraum

Title (fr)

Procédé de fabrication de peroxodisulfate alcalin ou d'ammonium dans une pièce d'électrolyse non divisée

Publication

EP 2546389 A1 20130116 (DE)

Application

EP 11173916 A 20110714

Priority

EP 11173916 A 20110714

Abstract (en)

The method comprises performing anodic oxidation of a salt of ammonium sulfate, alkali metal sulfate and/or hydrogen sulfate containing aqueous electrolyte in electrolytic cells that comprise anodes and cathodes to obtain peroxodisulfate, where a diamond layer disposed on a conductive support and doped with a tri- or pentavalent element is used as the anode, discharging electrolyte solution from a electrolyte circuit, recovering the produced peroxodisulfate by crystallization, and separating crystals from the electrolyte solution to form an electrolytic mother liquor. The method comprises performing anodic oxidation of a salt of ammonium sulfate, alkali metal sulfate and/or hydrogen sulfate containing aqueous electrolyte in electrolytic cells that comprise anodes and cathodes to obtain peroxodisulfate, where a diamond layer disposed on a conductive support and doped with a tri- or pentavalent element is used as the anode, discharging electrolyte solution from a electrolyte circuit, recovering the produced peroxodisulfate by crystallization, separating crystals from the electrolyte solution to form an electrolytic mother liquor, and recirculating the electrolyte mother liquor while increasing the content of acid sulfate and/or hydrogen sulfate in the electrolytic cell. The electrolytic cell further comprises an undivided electrolyte space between the anode and the cathode, and is a two-dimensional or three-dimensional cell such as a flat- or a tube cell. The diamond layer has a film thickness of 1 mu m. A boron-doped diamond layer is used on a niobium or a titanium carrier as the anode. The electrolytic cells are arranged in the form of a double tube parcel. The electrolyte: comprises acidic or neutral pH value; is moved, during the method, in the circuit through the electrolytic cell; includes 100-500 g/l of persulfate; and comprises 0.1-3.5 moles of sulfuric acid per liter of the electrolyte solution. The anodic oxidation is performed with an anodic current density of 400-1200 mA/cm 2>. A total solid content of the electrolyte is 0.5-650 g/l.

Abstract (de)

Die vorliegende Erfindung betrifft ein Verfahren zur Herstellung eines Ammonium- oder Alkalimetallperoxodisulfats.

IPC 8 full level

C25B 1/28 (2006.01); **C25B 9/17** (2021.01)

CPC (source: EP US)

C25B 1/29 (2021.01 - EP US); **C25B 9/17** (2021.01 - EP US)

Citation (applicant)

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BA ME

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