

Title (en)
ELECTROCATALYTICALLY ACTIVE NON-CARBON METAL-BASED ANODES FOR ALUMINIUM PRODUCTION CELLS

Title (de)
ELEKTROKATALYSCH E AKTIEVE KOHLENSTOFF-FREIE ANODE AUF BASIS VON METALLEN ZUR ANWENDUNG IN ALUMINIUM IN ALUMINIUM-HERSTELLUNGSZELLEN

Title (fr)
ANODES METALLIQUES EXEMPTES DE CARBONE A ACTIVITE ELECTROCATALYTIQUE POUR DES CELLULES ELECTROLYTIQUES DE PRODUCTION D'ALUMINIUM

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Application
EP 99900108 A 19990119

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- US 12620698 A 19980730

Abstract (en)
[origin: WO9936592A1] A non-carbon, metal-based high temperature resistant anode of a cell for the production of aluminium has a highly conductive metal-based substrate coated with one or more electrically conductive adherent intermediate protective layers and an outer layer which is electrically conductive and electrochemically active. The electrochemically active layer contains one or more electrocatalysts fostering the oxidation of oxygen ions as well as fostering the formation of biatomic molecular gaseous oxygen from the monoatomic nascent oxygen obtained by the oxidation of the oxygen ions present at the surface of the anode in order to inhibit ionic and/or monoatomic oxygen penetration. The intermediate layer(s) constitute(s) a substantially impermeable barrier to ionic, monoatomic and/or biatomic gaseous oxygen to prevent attack of the metal-based substrate. The electrocatalyst can be iridium, palladium, platinum, rhodium, ruthenium, silicon, tin, zinc, Mischmetal oxides and metals of the Lanthanide series. The applied layer usually comprises electrochemically active constituents selected from oxides, oxyfluorides, phosphides, carbides, in particular spinels such as ferrites.

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