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(54) Title: PREVENTION OF DISSOLUTION OF METAL-BASED ALUMINIUM PRODUCTION ANODES

(57) Abstract: A method of inhibiting dissolution of a transition metal alloy anode (40) of an aluminium electrowinning cell comprises providing a barrier layer (11,20,50,50') on a non-anodic structural cell material (15), such as carbon, and electrolysing alumina dissolved in a molten electrolyte (30). The non-anodic structural material is able to supply an oxidisable by-product to the electrolyte and/or is active for reducing electrolyte species exposed to the structural material into an oxidisable by-product, such as sodium metal or carbon dust. However, the barrier layer inhibits the presence in the molten electrolyte (30) of the oxidisable by-product that constitutes an agent for chemically reducing the anode's transition metal oxides and anodically evolved oxygen. This inhibits reduction of the anode's transition metal oxides by the oxidisable by-product and maintains the anodically evolved oxygen at a concentration such as to produce, at the alloy/oxide layer interface, stable and coherent transition metal oxides having a high level of oxidation. The barrier layer may comprise molten aluminium (20) and/or a layer of refractory hard material (11,50,50').



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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