

Title (en)

COMPOSITE MATERIALS FOR WETTABLE CATHODES AND USE THEREOF FOR ALUMINIUM PRODUCTION

Title (de)

VERBUNDWERKSTOFFE FÜR BENETZBARE KATHODEN UND VERWENDUNG DAVON FÜR DIE HERSTELLUNG VON ALUMINIUM

Title (fr)

MATÉRIAUX COMPOSITES POUR CATHODES MOUILLABLES ET USAGE DE CEUX-CI POUR LA PRODUCTION D'ALUMINIUM

Publication

**EP 2373823 A1 20111012 (FR)**

Application

**EP 09817140 A 20090929**

Priority

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Abstract (en)

[origin: WO2010037220A1] The invention relates to a composite material of formula: (C-N-B-MR)<sub>x</sub>(Al-MR)<sub>y</sub>(R)<sub>z</sub> in which C-N-B-MR is one or more carbides, nitrides or borides of one or more refractory metals of group IV, V or VI of the Periodic Table and/or one or more aluminium carbides, nitrides or borides chosen from Al<sub>4</sub>C<sub>3</sub>, AlN, AlB<sub>2</sub> and Al<sub>1</sub>-67B<sub>22</sub>; Al-MR is one or more aluminides of one or more of the above refractory metals, it being understood that: if MR = Nb, Ta, Hf, Zr, Ti or V, then Al-MR = Al<sub>3</sub>MR; if MR = W or Cr, then Al-MR = Al<sub>4</sub>MR; if MR = Mo, then Al-MR = Al<sub>8</sub>Mo<sub>3</sub> or Al<sub>17</sub>Mo<sub>4</sub> (? Al<sub>4</sub>Mo), and R is a residual component other than carbon, comprising one or more phases chosen from Al<sub>4</sub>C<sub>3</sub>, AlN, AlB<sub>2</sub>, Al<sub>1</sub>-67B<sub>22</sub> and MRtAlu(C-N-B)<sub>v</sub> in which t, u and v are numbers greater than or equal to zero, and x, y and z are the volume fractions of the respective components with  $x > y$ ;  $x + y > 0.5$ ;  $x + y + z = 1$  and  $0.01 < y < 0.5$ . The invention is also aimed at the use of this composite material as a coating in a component that can be wetted by liquid aluminium and can be used in electrolysis cells.

IPC 8 full level

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