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(54) Title: HIGH-ENERGY, RECHARGEABLE, ELECTROCHEMICAL CELLS NON-AQUEOUS ELECTROLYTES

(57) Abstract: The present invention provides a non-aqueous electrolyte for use in an electrochemical cell comprising: (a) at least one organic solvent; (b) at least one electrolytically active salt represented by the formula: $M'^{+m}(ZR_nX_{q-n})_m$ in which: M' is selected from a group consisting of magnesium, calcium, aluminum, lithium and sodium; Z is selected from a group consisting of aluminum, boron, phosphorus, antimony and arsenic; R represents radical selected from the following groups: alkyl, alkenyl, aryl, phenyl, benzyl, and amido; X is a halogen (I, Br, Cl, F); m=1-3; and n=0-5 and q=6 in the case of Z=phosphorus, antimony and arsenic, and n=0-3 and q=4 in the case of Z=aluminum and boron. Rechargeable, high energy density electrochemical cells containing an intercalation cathode, a metal anode, and an electrolyte of the above-described type are also disclosed.

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