

Title (en)
METHOD FOR GENERATING THERMAL ENERGY AND CHEMICAL FEEDSTOCK BY MEANS OF ALUMINO-THERMAL REACTION

Title (de)
VERFAHREN ZUR ERZEUGUNG VON THERMISCHER ENERGIE UND VON GRUNDCHEMIKALIEN MITTELS ALUMINOTHERMISCHER REAKTION

Title (fr)
PROCÉDÉ POUR GÉNÉRER DE L'ÉNERGIE THERMIQUE ET DES PRODUITS CHIMIQUES DE BASE PAR RÉACTION ALUMINOTHERMIQUE

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Application
EP 21727080 A 20210505

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Abstract (en)
[origin: CA3182924A1] The invention relates to a method for generating thermal energy and chemical feedstock comprising at least the following measures: a) generating aluminium metal by fused-salt electrolysis in a fused-salt electrolysis plant; b) using the aluminium metal to generate thermal energy and chemical feedstock selected from the group of carbon monoxide or hydrogen, by bringing carbon dioxide and/or water and/or a mixture containing a compound, which contains nitrogen and hydrogen, and carbon dioxide and/or water into contact with the aluminium metal and converting it in an alumino-thermal reaction to aluminium oxide and carbon monoxide and/or hydrogen; c) storing or chemically converting the carbon monoxide and/or hydrogen thereby generated; d) storing the thermal energy thereby generated or converting said energy into other forms of energy; and e) returning the obtained aluminium oxide into the fused-salt electrolysis. The method allows fused-salt electrolysis plants to be operated for the production of aluminium with renewable energies of temporally fluctuating power, without said plants having to be shut down. The method furthermore permits the coupling of power generation with the provision of chemical feedstock which can be used in a closed-loop process.

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