

Title (en)

PROCESS FOR OBTAINING THERMAL ENERGY BY THE COMBUSTION OF HYDROGEN IN ADMIXTURE WITH CARBON OXIDES, NITROGEN OXIDES AND/OR SULPHUR OXIDES AND INSTALLATION FOR THE APPLICATION OF THE PROCESS

Title (de)

VERFAHREN ZUR GEWINNUNG VON WÄRMEENERGIE DURCH VERBRENNUNG VON WASSERSTOFF IN BEIMISCHUNG MIT KOHLENSTOFFOXIDEN, STICKOXIDEN UND/ODER SCHWEFELOXIDEN SOWIE ANLAGE ZUR DURCHFÜHRUNG DES VERFAHRENS

Title (fr)

PROCÉDÉ D'OBTENTION D'ÉNERGIE THERMIQUE PAR LA COMBUSTION D'HYDROGÈNE EN MÉLANGE AVEC DES OXYDES DE CARBONE, DES OXYDES D'AZOTE ET/OU DES OXYDES DE SOUFRE ET INSTALLATION POUR L'APPLICATION DU PROCÉDÉ

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Application

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Abstract (en)

[origin: WO2013157974A2] The invention relates to a process and an installation for obtaining thermal energy by the combustion of hydrogen in admixture with carbon oxides, nitrogen oxides and/or sulphur oxides in the presence of a magnesium catalyst which is a mixture of magnesium chips and powder. The process for obtaining the thermal energy according to the invention consists of a first stage wherein the combustion of hydrogen in admixture with carbon oxides, nitrogen oxides and/or sulphur oxides in the presence of the magnesium catalyst is performed in an enclosure with orifices for discharging the gases and the carbon and/or sulphur atoms, with the formation of MgO and water and a second stage wherein magnesium is regenerated in the same enclosure by introducing extra hydrogen. The installation for the application of the process comprises a housing (1) made of stainless steel whereupon a cover (3) is secured, said cover (3) being connected to a conduit for supplying hydrogen (2), said housing (1) comprising: a chamber for the uniform distribution of hydrogen [M1]; a chamber for the uniform distribution of the mixture comprising carbon oxides, nitrogen oxides and/or sulphur oxides [M2]; a chamber [M3] for the homogenization of hydrogen in admixture with carbon oxides, nitrogen oxides and/or sulphur oxides; a catalyst chamber [14] wherein a magnesium catalyst [13] is placed as a mixture of chips and powder; copper or stainless steel pipes [7] and [8], respectively, which ensure the transport and uniform distribution of H₂ and respectively of the mixture of carbon oxides, nitrogen oxides and/or sulphur oxides on the surface of the quartz layer [18], but also of the catalyst [13]; a deflector [16] for the homogenization of the gaseous mixture, and to the outer side of the housing there being provided: a conduit for the completion of the catalyst [17]; conduit for supplying H₂ [2], conduit for supplying with mixture comprising carbon oxides, nitrogen oxides and/or sulphur oxides CO₂ [4] and a conduit for discharging carbon and/or sulphur [10].

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See references of WO 2013157974A2

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