

Title (en)
AUTOTHERMIC REACTOR CIRCUIT FOR DIRECT COUPLING OF ENDOTHERMIC AND EXOTHERMIC REACTIONS

Title (de)
AUTOTHERME REAKTORSCHALTUNG ZUR DIREKTEN KOPPLUNG ENDOTHERMER UND EXOTHERMER REAKTIONEN

Title (fr)
CIRCUIT DE REACTEUR AUTOTHERME POUR L'ACCOUPLEMENT DIRECT DE REACTIONS ENDOTHERMIQUES ET EXOTHERMIQUES

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Application
EP 00971427 A 20001106

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Abstract (en)
[origin: DE19953233A1] A reactor circuit for autothermic coupling of exothermic and endothermic reactions with separate conduction of both reaction flows, comprising heat exchanging sections (2, 9, 19) between all supplied educt gases (1, 4, 8) and all hot product gases (3, 10), in addition to a reaction area (7, 11, 12) wherein exothermic and endothermic reactions occur in a direct exchange of heat, said exchange occurring in the heat exchanging sections (2, 9, 19) between the supplied educt gases (1, 4, 8) and the hot product gases (3, 10, 15) either in a recuperative manner in a counter flow or in a cross-counter flow or in a regenerative manner, the heat capacity of one partial flow in each heat exchanger section corresponding approximately to the heat capacity of the other partial flow, the exothermic and endothermic reaction in one reaction area (7) respectively occurring in a chronologically or spatially separate manner, whereby the two partial areas (11, 12) in the case of a spatial separation are locally coupled to each other in such a way as to result in an excellent exchange of heat therebetween and whereby the exothermic reaction in the case of a spatial and chronological separation is influenced in such a way that it only begins upon arrival in the reaction area thereof (11) and the reaction heat is released in a substantially evenly distributed manner over a relatively large local area which overlaps with the reaction area of the endothermic reaction (12) and is transferred to the endothermic reaction.

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