Title (en)

METHOD FOR PRODUCING A FUEL GAS CONTAINING HYDROGEN FOR ELECTROCHEMICAL CELLS AND ASSOCIATED DEVICE

Title (de)

VERFAHREN ZUR ERZEUGUNG EINES WASSERSTOFFHALTIGEN BRENNGASES FÜR BRENNSTOFFZELLEN SOWIE VORRICHTUNG DAFÜR

Title (fr)

PROCEDE POUR PRODUIRE UN GAZ COMBUSTIBLE CONTENANT DE L'HYDROGENE POUR DES CELLULES ELECTROCHIMIQUES ET DISPOSITIF ASSOCIE

Publication

EP 1562853 A1 20050817 (DE)

Application

EP 03811381 A 20031118

Priority

- DE 10253930 A 20021119
- EP 0312909 W 20031118

Abstract (en)

[origin: WO2004046026A1] The invention concerns a method and a device for producing fuel gases containing hydrogen for electrochemical cells, said method consisting in catalytic reforming of hydrocarbons and subsequent purifying of the gas. The method is characterized in that the catalytic reforming is carried out in two successive steps, the first operation being an autothermal reforming process and the second operation consisting in a low-temperature vapour reforming process, at temperatures lower than 650 DEG C. In the first step (autothermal reforming process), a mixture of starting products consisting of hydrocarbons, oxygen and water or water vapour is partly transformed into a gas mixture rich in hydrogen by means of a catalyst during an autothermal reforming process. Said mixture, which still contains hydrocarbon residues, is then transformed into a fuel gas rich in hydrogen during the subsequent vapour reforming process (second step). Thus a fuel gas containing a very high part of hydrogen and exiting the reactor at a temperature between 400 and 650 DEG C is obtained. Said exhaust temperatures being low, the fuel gas can be directly subjected to the purifying step, without requiring the use of additional heat exchangers. Additionally to the increased reforming performance, the invention also enables a more compact and less costly reformer design. Said method and said device are useful for generating hydrogen or fuel gases containing hydrogen for electrochemical cells, in particular for mobile or fixed applications.

IPC 1-7

C01B 3/38; B01J 19/24

IPC 8 full level

B01J 19/24 (2006.01); **C01B 3/38** (2006.01); B01J 23/46 (2006.01); B01J 35/04 (2006.01); B01J 37/02 (2006.01)

CPC (source: EP KR US)

B01J 19/24 (2013.01 - EP KR US); **B01J 19/2485** (2013.01 - EP US); **C01B 3/26** (2013.01 - KR); **C01B 3/38** (2013.01 - KR); **C01B 3/382** (2013.01 - EP US); B01J 23/464 (2013.01 - EP US); B01J 35/56 (2024.01 - EP US); B01J 37/0215 (2013.01 - EP US); B01J 2208/0053 (2013.01 - EP US); B01J 2208/025 (2013.01 - EP US); C01B 2203/0233 (2013.01 - EP US); C01B 2203/0244 (2013.01 - EP US); C01B 2203/0283 (2013.01 - EP US); C01B 2203/0405 (2013.01 - EP US); C01B 2203/0844 (2013.01 - EP US); C01B 2203/1023 (2013.01 - EP US); C01B 2203/1064 (2013.01 - EP US); C01B 2203/143 (2013.01 - EP US); C01B 2203/82 (2013.01 - EP US); Y02P 20/52 (2015.11 - EP US)

Citation (search report)

See references of WO 2004046026A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2004046026 A1 20040603; AU 2003302090 A1 20040615; DE 10253930 A1 20040609; EP 1562853 A1 20050817; JP 2006506309 A 20060223; KR 20050083902 A 20050826; US 2006168887 A1 20060803

DOCDB simple family (application)

EP 0312909 W 20031118; AU 2003302090 A 20031118; DE 10253930 A 20021119; EP 03811381 A 20031118; JP 2004552649 A 20031118; KR 20057009054 A 20050519; US 53560506 A 20060202