

Title (en)
GAS SEPARATION METHOD AND APPARATUS USING PARTIAL PRESSURE SWING ADSORPTION

Title (de)
GASTRENNUNGSVERFAHREN UND -VORRICHTUNG UNTER VERWENDUNG TEILWEISER DRUCKSCHWINGUNGSADSORPTION

Title (fr)
METHODE DE SEPARATION DE GAZ ET APPAREIL FAISANT APPEL A UNE ADSORPTION PARTIELLE MODULEE EN PRESSION

Publication
EP 1909945 A4 20090624 (EN)

Application
EP 06800265 A 20060724

Priority

- US 2006028615 W 20060724
- US 18811805 A 20050725
- US 18812005 A 20050725

Abstract (en)
[origin: WO2007014129A1] A four-step partial pressure swing adsorption method and apparatus is provided for gas separation, such as for recovering fuel from the fuel exhaust of a fuel cell stack. A method of operating a fuel cell system includes providing a fuel inlet stream into a fuel cell stack, operating the fuel cell stack to generate electricity and a hydrogen containing fuel exhaust stream, separating at least a portion of hydrogen contained in the fuel exhaust stream using partial pressure swing adsorption, and providing the hydrogen separated from the fuel exhaust stream into the fuel inlet stream.

IPC 8 full level
B01D 53/02 (2006.01); **H01M 8/04** (2006.01)

CPC (source: EP)
B01D 53/047 (2013.01); **C01B 3/384** (2013.01); **C01B 3/48** (2013.01); **C01B 3/56** (2013.01); **H01M 8/04171** (2013.01); **H01M 8/0668** (2013.01); **B01D 2253/102** (2013.01); **B01D 2253/104** (2013.01); **B01D 2253/106** (2013.01); **B01D 2253/108** (2013.01); **B01D 2256/16** (2013.01); **B01D 2257/108** (2013.01); **B01D 2257/504** (2013.01); **B01D 2257/80** (2013.01); **B01D 2258/0208** (2013.01); **B01D 2259/40062** (2013.01); **C01B 2203/0233** (2013.01); **C01B 2203/0283** (2013.01); **C01B 2203/043** (2013.01); **C01B 2203/0475** (2013.01); **C01B 2203/066** (2013.01); **C01B 2203/067** (2013.01); **C01B 2203/0805** (2013.01); **C01B 2203/0811** (2013.01); **C01B 2203/0822** (2013.01); **C01B 2203/0827** (2013.01); **C01B 2203/1241** (2013.01); **C01B 2203/148** (2013.01); **C01B 2203/86** (2013.01); **H01M 2008/1293** (2013.01); **H01M 2008/147** (2013.01); **Y02C 20/40** (2020.08); **Y02E 60/50** (2013.01); **Y02P 20/10** (2015.11); **Y02P 20/151** (2015.11); **Y02P 30/00** (2015.11)

Citation (search report)

- [X] US 2004197612 A1 20041007 - KEEFER BOWIE G [CA], et al
- [X] US 2004229102 A1 20041118 - JAHNKE FRED C [US], et al
- [A] US 2001049037 A1 20011206 - ST-PIERRE JEAN [CA], et al
- [A] US 2004202914 A1 20041014 - SRIDHAR K R [US], et al
- See references of WO 2007014129A1

Citation (examination)
D.M. RUTHVEN: "Principles of Adsorption and Adsorption Processes", 1984, JOHN WILEY & SONS, New York, pages: 336 - 339

Cited by
CN112973442A

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 2007014129 A1 20070201; EP 1909945 A1 20080416; EP 1909945 A4 20090624; JP 2009503791 A 20090129; JP 5113749 B2 20130109

DOCDB simple family (application)
US 2006028615 W 20060724; EP 06800265 A 20060724; JP 2008524024 A 20060724