

Title (en)

Method and apparatus for ammonia synthesis at atmospheric pressure

Title (de)

Verfahren und Vorrichtung zur Ammoniaksynthese bei Atmosphärendruck

Title (fr)

Procédé et dispositif de synthèse d'ammoniac à pression atmosphérique

Publication

EP 0972855 A1 20000119 (EN)

Application

EP 99600008 A 19990701

Priority

GR 98100255 A 19980703

Abstract (en)

Prototype reactor and method for the ammonia synthesis at atmospheric pressure. This invention relates to the ammonia production from its elements (N₂ and H₂) at atmospheric pressure. This was achieved in a solid state proton (H⁺) conducting cell - reactor. Hydrogen was flowing over the anode (6) and was converted into protons that were transported through the solid electrolyte (4) and reached the cathode (5)(Pd) over which nitrogen was passing. <IMAGE>

IPC 1-7

C25B 1/00

IPC 8 full level

C25B 1/00 (2006.01)

CPC (source: EP)

C25B 1/00 (2013.01)

Citation (search report)

- [X] EP 0480116 A1 19920415 - VAYENAS CONSTANTIN G [GR], et al
- [X] PATENT ABSTRACTS OF JAPAN vol. 097, no. 001 31 January 1997 (1997-01-31)
- [X] CHEMICAL ABSTRACTS, vol. 124, no. 26, 24 June 1996, Columbus, Ohio, US; abstract no. 347240, PANAGOS, E. ET AL: "Modeling of equilibrium limited hydrogenation reactions carried out in H⁺ conducting solid oxide membrane reactors" XP002091039 & CHEM. ENG. SCI. (1996), 51(11), 3175-3180 CODEN: CESCAC;ISSN: 0009-2509, 1996
- [A] DATABASE WPI Section Ch Week 8803, Derwent World Patents Index; Class E36, AN 88-017141, XP002091040

Cited by

US9005422B2; US8398842B2; CN115896818A; CN108350584A; US7811442B2; US2011120880A1; CN103154323A; US2012234689A1; JP2016014176A; NL2011188C2; AU2014290913B2; US10309020B2; KR101695622B1; WO2015009155A1; WO2008079586A1; WO2008097644A1; US10017866B2; EP3567134A1; WO03076687A3; WO2015103391A1; KR101460988B1; US7314544B2; US8075757B2; US8282809B2; KR20200078844A

Designated contracting state (EPC)

BE DE FR GB IT NL

DOCDB simple family (publication)

EP 0972855 A1 20000119; EP 0972855 B1 20030122; DE 69904990 D1 20030227; GR 1003196 B 19990901

DOCDB simple family (application)

EP 99600008 A 19990701; DE 69904990 T 19990701; GR 980100255 A 19980703