

Title (en)

PRODUCTION OF HYDROGEN GAS FROM SULFUR-CONTAINING COMPOUNDS

Title (de)

HERSTELLUNG VON WASSERSTOFFGAS AUS SCHWEFELHALTIGEN VERBINDUNGEN

Title (fr)

PRODUCTION D'HYDROGÈNE GAZEUX À PARTIR DE COMPOSÉS CONTENANT DU SOUFRE

Publication

EP 2167423 A4 20111109 (EN)

Application

EP 08768528 A 20080617

Priority

- US 2008007524 W 20080617
- US 96163907 P 20070723

Abstract (en)

[origin: WO2009014584A1] The described invention is a process for producing hydrogen gas comprising (a) combusting sulfur (S) or hydrogen sulfide (H₂S) with oxygen (O₂) to obtain sulfur dioxide (SO₂) and water (H₂O), plus heat; (b) adding water to the product of (a) to obtain a sulfurous acid solution (H₂SO₃ and H₂O); (c) applying electrical current to the sulfurous acid solution of (b) to obtain sulfuric acid (H₂SO₄) and hydrogen gas (H₂); and, (d) using gas-liquid separation to separate the sulfuric acid from the hydrogen gas to obtain separated components of the sulfuric acid and the hydrogen gas; and, wherein the heat generated in (a) is used to generate at least a portion of the electricity for the electrical current of (c).

IPC 8 full level

C01B 17/48 (2006.01); **C01B 17/50** (2006.01); **C01B 17/54** (2006.01); **C25B 1/02** (2006.01); **C25B 1/22** (2006.01)

CPC (source: EP US)

C01B 17/508 (2013.01 - EP US); **C01B 17/54** (2013.01 - EP US); **C01B 17/74** (2013.01 - EP US); **C25B 1/02** (2013.01 - EP US); **C25B 1/22** (2013.01 - EP US)

Citation (search report)

- [ID] US 4519881 A 19850528 - CHANG YUEHSIUNG [US]
- [YD] US 3888750 A 19750610 - BRECHER LEE E, et al
- [Y] WO 9011250 A1 19901004 - NUTRI SUL INT INC [US]
- [A] WO 9222680 A1 19921223 - STAUFFER JOHN E [US]
- [AP] WO 2007118172 A2 20071018 - UNIV COLUMBIA [US], et al
- [Y] DATABASE CA [online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 1989, SOROKO, V. E. ET AL: "Manufacture of hydrogen", XP002464921, retrieved from STN Database accession no. 111:25795 & SU 1472435 A1 19890415 - LE T I IM LENSOVETA [SU]
- [A] BRECHER L E ET AL: "WESTINGHOUSE SULFUR CYCLE FOR THE THERMOCHEMICAL DECOMPOSITION OF WATER", INT J HYDROGEN ENERGY 1977, vol. 2, no. 1, 1977, pages 7 - 15, XP002464920
- See references of WO 2009014584A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2009014584 A1 20090129; AU 2008279815 A1 20090129; CA 2689461 A1 20090129; EP 2167423 A1 20100331; EP 2167423 A4 20111109; US 2010230296 A1 20100916

DOCDB simple family (application)

US 2008007524 W 20080617; AU 2008279815 A 20080617; CA 2689461 A 20080617; EP 08768528 A 20080617; US 59985708 A 20080617