

Title (en)
PROCESS AND APPARATUS FOR PRODUCTION OF AMMONIA SYNTHESIS GAS AND PURE METHANE BY CRYOGENIC SEPARATION

Title (de)
VERFAHREN UND VORRICHTUNG ZUR ERZEUGUNG VON AMMONIAKSYNTHESEGAS UND REINEM METHAN DURCH
TIEFTEMPERATURZERLEGUNG

Title (fr)
PROCÉDÉ ET APPAREIL DE FABRICATION D'UN GAZ DE SYNTHÈSE D'AMMONIAC ET DE MÉTHANE PUR PAR SÉPARATION
CRYOGÉNIQUE

Publication
EP 2665678 A1 20131127 (EN)

Application
EP 11856493 A 20110117

Priority
CN 2011070315 W 20110117

Abstract (en)
[origin: WO2012097497A1] In a process for the production of ammonia synthesis gas and pure methane by cryogenic separation of a feed gas containing at least 75% hydrogen as well as methane and nitrogen, the feed gas is cooled in a heat exchanger (7) and partially condensed, the partially condensed feed is sent to a phase separator (31), the gas from the phase separator is sent to a nitrogen wash column (45), liquid nitrogen is sent to the top of the nitrogen wash column and ammonia synthesis gas (57, 67, 69) is removed from the top of the nitrogen wash column, the liquid from the phase separator is expanded and sent to a separation column (19), a nitrogen enriched gas stream (43) is removed from the top of the column and a nitrogen depleted liquid stream (39) rich in methane is removed from the bottom of the column and the nitrogen depleted liquid stream rich in methane is vaporised to form a pure methane product (71, 73).

IPC 8 full level
C01B 3/50 (2006.01); **C07C 9/04** (2006.01); **F25J 3/02** (2006.01); **F25J 3/06** (2006.01)

CPC (source: EP US)
C01B 3/506 (2013.01 - EP US); **C07C 7/09** (2013.01 - EP US); **F25J 3/0223** (2013.01 - EP US); **F25J 3/0233** (2013.01 - EP US); **F25J 3/0276** (2013.01 - EP US); **F25J 3/08** (2013.01 - US); **F25J 2200/70** (2013.01 - EP US); **F25J 2200/72** (2013.01 - EP US); **F25J 2205/02** (2013.01 - EP US); **F25J 2205/04** (2013.01 - EP US); **F25J 2205/30** (2013.01 - EP US); **F25J 2210/06** (2013.01 - EP US); **F25J 2210/42** (2013.01 - EP US); **F25J 2215/02** (2013.01 - EP US); **F25J 2220/02** (2013.01 - EP US); **F25J 2260/02** (2013.01 - EP US); **F25J 2270/904** (2013.01 - EP US)

C-Set (source: EP US)
C07C 7/09 + **C07C 9/04**

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2012097497 A1 20120726; CN 103328375 A 20130925; CN 103328375 B 20160210; EP 2665678 A1 20131127; EP 2665678 A4 20180404; US 2013298600 A1 20131114

DOCDB simple family (application)
CN 2011070315 W 20110117; CN 201180065228 A 20110117; EP 11856493 A 20110117; US 201113979491 A 20110117