

Title (en)  
METHOD FOR THE PRODUCTION OF HIGH-PURITY BIOMETHANE

Title (de)  
VERFAHREN ZUR HERSTELLUNG VON HOCHREINEM BIOMETHAN

Title (fr)  
PROCÉDÉ DE PRODUCTION DE BIOMÉTHANE DE HAUTE PURETÉ

Publication  
**EP 4001381 A1 20220525 (EN)**

Application  
**EP 21206402 A 20211104**

Priority  
IT 202000027474 A 20201117

Abstract (en)  
A method for the production of biomethane (10) from biogas (100), wherein the biogas (100) is subjected to at least two steps of biogas upgrading, with intermediate removal of  $H_2O$ , the biogas upgrading step consisting in the direct methanation reaction of the  $CO_2$  that is present in the biogas:  
 $CO_2 + 4H_2 \leftrightarrow CH_4 + 2H_2O$ .

IPC 8 full level  
**C10L 3/08** (2006.01); **B01D 5/00** (2006.01); **C10L 3/10** (2006.01)

CPC (source: EP)  
**C10L 3/08** (2013.01); **C10L 3/106** (2013.01); **C10L 2290/06** (2013.01); **C10L 2290/26** (2013.01)

Citation (applicant)  
NATURAL GAS AND BIOMETHANE FOR USE IN TRANSPORT AND BIOMETHANE FOR INJECTION IN THE NATURAL GAS NETWORK,  
December 2016 (2016-12-01)

Citation (search report)

- [X1] DE 102014001933 A1 20150813 - NIEDERBACHER MICHAEL [IT]
- [E] WO 2021234073 A1 20211125 - TMA PROCESS [FR], et al
- [X1] MUÑOZ RAÚL ET AL: "A review on the state-of-the-art of physical/chemical and biological technologies for biogas upgrading", REVIEWS IN ENVIRONMENTAL SCIENCE AND BIO-TECHNOLOGY, KLUWER, DORDRECHT, NL, vol. 14, no. 4, 26 September 2015 (2015-09-26), pages 727 - 759, XP035930331, ISSN: 1569-1705, [retrieved on 20150926], DOI: 10.1007/S11157-015-9379-1
- [I] ADNAN ET AL: "Technologies for Biogas Upgrading to Biomethane: A Review", BIOENGINEERING, vol. 6, no. 4, 2 October 2019 (2019-10-02), pages 92, XP055644058, DOI: 10.3390/bioengineering6040092
- [X1] NATALIA ALFARO ET AL: "Evaluation of process performance, energy consumption and microbiota characterization in a ceramic membrane bioreactor for ex-situ biomethanation of  $H_2$  and  $CO_2$ ", BIORESOURCE TECHNOLOGY, vol. 258, 23 February 2018 (2018-02-23), AMSTERDAM, NL, pages 142 - 150, XP055701493, ISSN: 0960-8524, DOI: 10.1016/j.biortech.2018.02.087
- [X1] CURTO DIEGO ET AL: "Renewable based biogas upgrading", JOURNAL OF CLEANER PRODUCTION, vol. 224, 20 March 2019 (2019-03-20), pages 50 - 59, XP085670709, ISSN: 0959-6526, DOI: 10.1016/J.JCLEPRO.2019.03.176

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

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
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