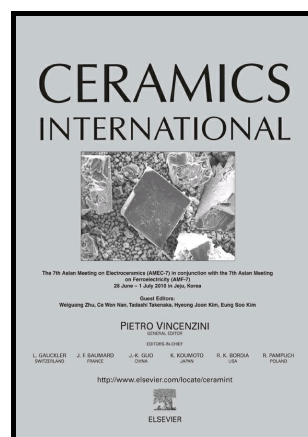


Author's Accepted Manuscript

Hydrogen production through dry reforming of biogas using a porous electrochemical cell: Effects of a cobalt catalyst in the electrode and mixing of air with biogas

Taro Shimonosono, Yoshihiro Hirata, Mubin Changgan, Syohei Kamei, Rina Tokaiya, Soichiro Sameshima, Toshifumi Yoshidome, Katsuhiko Yamaji



www.elsevier.com/locate/ceri

PII: S0272-8842(18)30380-8
DOI: <https://doi.org/10.1016/j.ceramint.2018.02.082>
Reference: CER117484

To appear in: *Ceramics International*

Received date: 11 October 2017
Revised date: 19 January 2018
Accepted date: 8 February 2018

Cite this article as: Taro Shimonosono, Yoshihiro Hirata, Mubin Changgan, Syohei Kamei, Rina Tokaiya, Soichiro Sameshima, Toshifumi Yoshidome and Katsuhiko Yamaji, Hydrogen production through dry reforming of biogas using a porous electrochemical cell: Effects of a cobalt catalyst in the electrode and mixing of air with biogas, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2018.02.082>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Hydrogen production through dry reforming of biogas using a porous electrochemical cell: Effects of a cobalt catalyst in the electrode and mixing of air with biogas

Taro Shimonosono¹, Yoshihiro Hirata^{1*}, Mubin Changan¹, Syohei Kamei¹, Rina Tokaiya¹, Soichiro Sameshima¹, Toshifumi Yoshidome¹, Katsuhiko Yamaji²

1) Department of Chemistry, Biotechnology, and Chemical Engineering, Kagoshima University, 1-21-40 Korimoto, Kagoshima 890-0065, Japan

2) Fuel Cell Materials Group, Research Institute for Energy Conservation, National Institute of Advanced Industrial Science and Technology (AIST), AIST Tsukuba Central 5, 1-1-1 Higashi, Tsukuba, Ibaraki 305-8565, Japan

*Corresponding author: Yoshihiro Hirata, Tel (+81)99-285-8325, Fax (+81)99-257-4742, E-mail hirata@cen.kagoshima-u.ac.jp

Abstract

This paper reports the performance of porous Gd-doped ceria (GDC) electrochemical cells with Co metal in both electrodes (cell No. 1) and with Ni metal in the cathode and Co metal in the anode (cell No. 2) for CO₂ decomposition, CH₄ decomposition, and the dry reforming reaction of a biogas with CO₂ gas ($\text{CH}_4 + \text{CO}_2 \rightarrow 2\text{H}_2 + 2\text{CO}$) or with O₂

Download English Version:

<https://daneshyari.com/en/article/7887399>

Download Persian Version:

<https://daneshyari.com/article/7887399>

[Daneshyari.com](https://daneshyari.com)