

Accepted Manuscript

Title: Kinetics of CO₂ methanation on a Ru-based catalyst at process conditions relevant for Power-to-Gas applications

Authors: Leonardo Falbo, Michela Martinelli, Carlo Giorgio Visconti, Luca Lietti, Claudia Bassano, Paolo Deiana



PII: S0926-3373(17)31132-3
DOI: <https://doi.org/10.1016/j.apcatb.2017.11.066>
Reference: APCATB 16218

To appear in: *Applied Catalysis B: Environmental*

Received date: 23-8-2017
Revised date: 20-11-2017
Accepted date: 25-11-2017

Please cite this article as: Leonardo Falbo, Michela Martinelli, Carlo Giorgio Visconti, Luca Lietti, Claudia Bassano, Paolo Deiana, Kinetics of CO₂ methanation on a Ru-based catalyst at process conditions relevant for Power-to-Gas applications, Applied Catalysis B, Environmental <https://doi.org/10.1016/j.apcatb.2017.11.066>

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 proof before it is published in its final 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.

Kinetics of CO₂ methanation on a Ru-based catalyst at process conditions relevant for Power-to-Gas applications

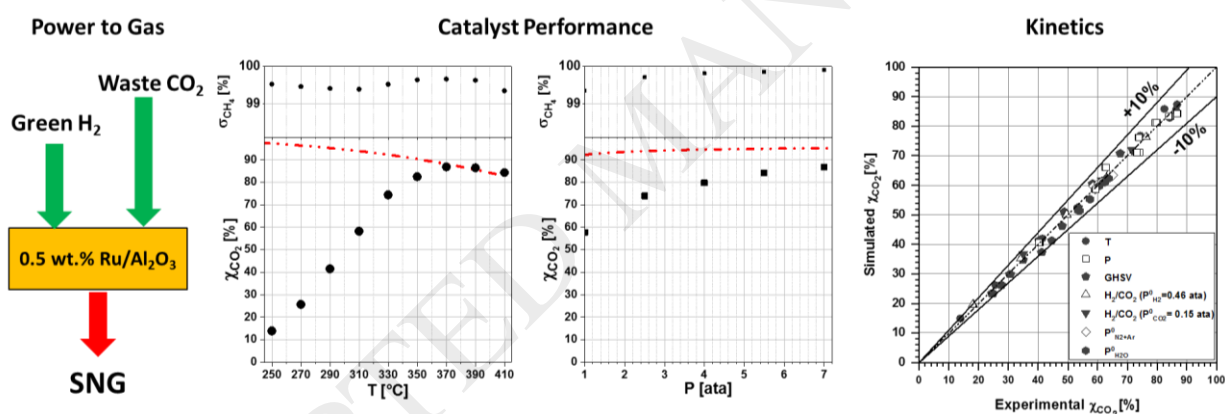
Leonardo Falbo ^a, Michela Martinelli ^a, Carlo Giorgio Visconti ^{a*}, Luca Lietti ^a,
Claudia Bassano ^b, Paolo Deiana ^b

^a Politecnico Di Milano, Dipartimento di Energia, Milano, 20156, Italy

^b ENEA, Santa Maria di Galeria (Roma), 00123, Italy

*Corresponding author: carlo.visconti@polimi.it

Graphical Abstract



Highlights

- 0.5 wt.% Ru/Al₂O₃ catalyst is used for the methanation of concentrated CO₂ streams
- Catalyst performance is assessed in a wide range of conditions, including P > 1 ata
- The catalyst is highly selective to CH₄, with minor amounts of CO as byproduct
- Literature rate laws aren't satisfactory in describing data collected under pressure
- A novel rate expression kinetics is proposed, accounting for the kinetic inhibition of H₂O

Download English Version:

<https://daneshyari.com/en/article/6498734>

Download Persian Version:

<https://daneshyari.com/article/6498734>

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