

## Accepted Manuscript

Methanol oxidation in dry and humid air by dielectric barrier discharge plasma combined with MnO<sub>2</sub>–CuO based catalysts

Caroline Norsic, Jean-Michel Tatibouët, Catherine Batiot-Dupeyrat, Elodie Fourréa

PII: S1385-8947(18)30632-6  
DOI: <https://doi.org/10.1016/j.cej.2018.04.065>  
Reference: CEJ 18865

To appear in: *Chemical Engineering Journal*

Received Date: 18 January 2018  
Revised Date: 19 March 2018  
Accepted Date: 10 April 2018

Please cite this article as: C. Norsic, J-M. Tatibouët, C. Batiot-Dupeyrat, E. Fourréa, Methanol oxidation in dry and humid air by dielectric barrier discharge plasma combined with MnO<sub>2</sub>–CuO based catalysts, *Chemical Engineering Journal* (2018), doi: <https://doi.org/10.1016/j.cej.2018.04.065>

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.



Methanol oxidation in dry and humid air by dielectric barrier discharge plasma combined with MnO<sub>2</sub>-CuO based catalysts

Caroline Norsic<sup>a</sup>, Jean-Michel Tatibouët<sup>a</sup>, Catherine Batiot-Dupeyrat<sup>a</sup>, Elodie Fourréa

<sup>a</sup> Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP), UMR CNRS 7285  
Université de Poitiers, Ecole Nationale Supérieure d'Ingénieurs de Poitiers (ENSIP)  
1, rue marcel Doré, TSA 41105, 86073 Poitiers cedex 9 (France)

Corresponding author: elodie.fourre@univ-poitiers.fr

Other authors: caroline.norsic@univ-orleans.fr

jean.michel.tatibouet@univ-poitiers.fr

Catherine.batiot.dupeyrat@univ-poitiers.fr

### Keywords

Non thermal plasma, humidity, methanol, oxidation, metal oxide, TPR, ozone

### Highlights

- Humidity in plasma alone enhanced CO<sub>2</sub> selectivity
- 5% MnO<sub>2</sub>/5% CuO/Al<sub>2</sub>O<sub>3</sub> balls catalyst presented the best activities
- Partial blockage of ozone decomposition cycle by H<sub>2</sub>O<sub>2</sub>
- High flow rate treatment of low pollutant concentration is achievable with scaling up

### Abstract

Presence of humidity in polluted gas streams is a key parameter to give a realistic view of a depollution process efficiency. With this in mind, the elimination of methanol by non thermal plasma in presence of a MnO<sub>2</sub>-CuO based catalyst and 35 % relative humidity (20°C,

Download English Version:

<https://daneshyari.com/en/article/6579267>

Download Persian Version:

<https://daneshyari.com/article/6579267>

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