

Accepted Manuscript

Hierarchical Fe-, Cu- and Co-Beta zeolites obtained by mesotemplate-free method. Part I: Synthesis and catalytic activity in N₂O decomposition

M. Rutkowska, Z. Piwowska, E. Micek, L. Chmielarz

PII: S1387-1811(14)00585-X

DOI: <http://dx.doi.org/10.1016/j.micromeso.2014.10.011>

Reference: MICMAT 6815

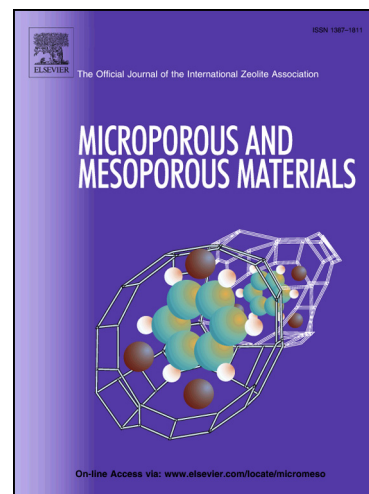
To appear in: *Microporous and Mesoporous Materials*

Received Date: 31 May 2014

Accepted Date: 6 October 2014

Please cite this article as: M. Rutkowska, Z. Piwowska, E. Micek, L. Chmielarz, Hierarchical Fe-, Cu- and Co-Beta zeolites obtained by mesotemplate-free method. Part I: Synthesis and catalytic activity in N₂O decomposition, *Microporous and Mesoporous Materials* (2014), doi: <http://dx.doi.org/10.1016/j.micromeso.2014.10.011>

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.



Hierarchical Fe-, Cu- and Co-Beta zeolites obtained by mesotemplate-free method.**Part I: Synthesis and catalytic activity in N₂O decomposition**

M. Rutkowska^{1*}, Z. Piwowarska¹, E. Micek¹, L. Chmielarz¹

¹Jagiellonian University, Ingardena 3, 30-060 Kraków, Poland

*Corresponding author. Tel.: +48 126632096, fax: +48 126340515. E-mail address: ma.rutkows@chemia.uj.edu.pl (M. Rutkowska)

Keywords: zeolite β , hierarchical zeolites, N₂O decomposition

Abstract:

Two series of BEA zeolites (Beta and Beta/meso) have been prepared. A first series of the samples was obtained by a conventional aging of parent zeolite gel, while the second series (Beta/meso) was prepared by mesotemplate-free method. In this method Beta nanoparticles are aggregated under acidic conditions with the formation of micro-mesoporous material. Both series (Beta and Beta/meso) were doped with Fe, Cu and Co by ion-exchange method and tested as catalysts of N₂O decomposition. The Cu-Beta catalysts was found to be the most active in the process of N₂O decomposition conducted in inert gas atmosphere. However, in the process performed under conditions similar to those prevailing in waste gases emitted from nitric acid plants (one of the main sources of N₂O emission) higher reaction rate was found for the Cu-Beta/meso catalyst.

1. Introduction

The emission of nitrous oxide (N₂O) to the atmosphere is one of the main environmental problem, contributing to the greenhouse effect and destruction of the ozone layer. The

Download English Version:

<https://daneshyari.com/en/article/6533069>

Download Persian Version:

<https://daneshyari.com/article/6533069>

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