Porosity Design of Shaped Zeolites for Improved Catalyst Lifetime in the Methanol-to-Hydrocarbons Reaction

Rogéria Bingre 1, Renna Li 2, Qiang Wang 2, Patrick Nguyen 3, Thomas Onfroy 4 and Benoît Louis 1,*

- ¹ ICPES—Institut de Chimie et Procédés pour l'Energie, l'Environnement et la Santé, Energy and Fuels for a Sustainable Environment Team, UMR 7515 CNRS—Université de Strasbourg—ECPM, 25 rue Becquerel, F-67087 Strasbourg CEDEX 2, France
- ² EFN—Environmental Functional Nanomaterials Lab, College of Environmental Science and Engineering, Beijing Forestry University, P.O. Box 60, 35 Qinghua East Road, Haidian District, Beijing 100083, China
- ³ Saint-Gobain C.R.E.E., 550 Avenue Alphoense Jauffret, BP 224, 84306 Cavaillon CEDEX, France
- ⁴ Sorbonne Université, CNRS, Laboratoire de Réactivité de Surface (LRS), F-75005 Paris, France
- * Correspondence: blouis@unistra.fr; Tel.: +33-368-852-766

Received: 24 May 2019; Accepted: 16 June 2019; Published: 18 June 2019

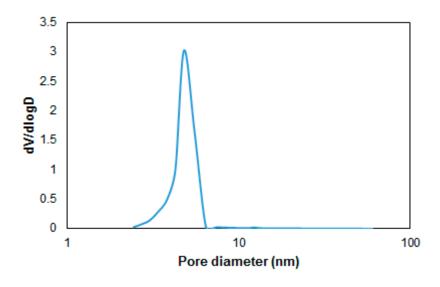


Figure S1: Pore size distribution of boeh_ext obtained by BJH method.

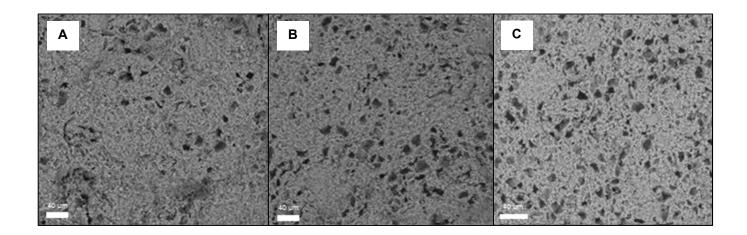


Figure S2: SEM images of the samples with different quantities of PA1: (a) Catal_5PA1; (b) Catal_10PA1; (c) Catal_20PA1.

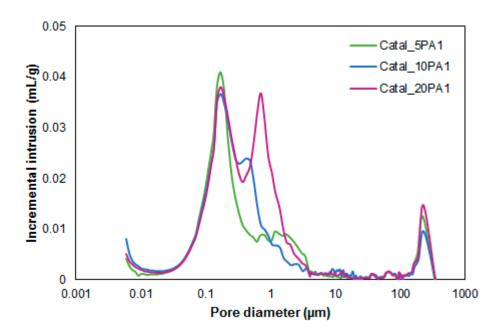


Figure S3: Pore profile of the samples with different quantities of PA1 obtained by mercury intrusion porosimetry.

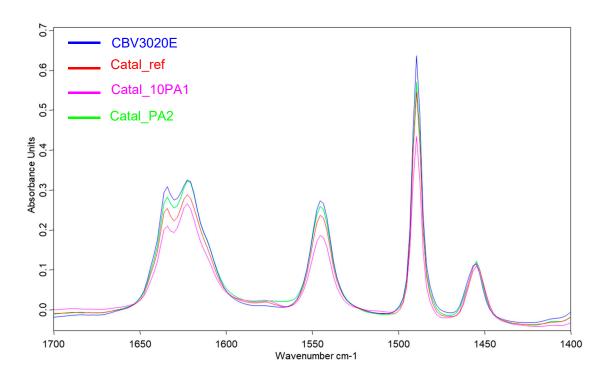


Figure S4: Spectra of pyridine adsorption followed by FTIR after desorption at 150 $^{\circ}$ C.

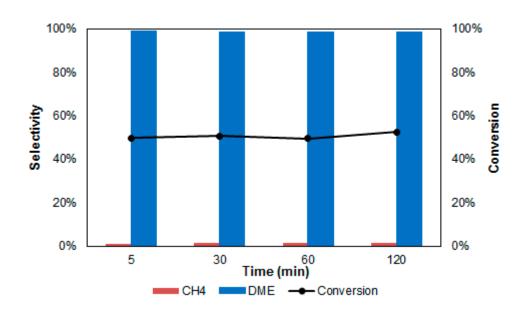


Figure S5: Catalytic activity of boeh_ext: conversion of methanol and selectivity in methane and dimethyl ether.