energies

MDPI

Supplementary information

High channel density ceramic microchannel reactor for syngas production

Estelle le Saché [1], Panayiotis Tsaousis [2], Tomas Ramirez Reina [1,*], Enrique Ruiz-Trejo [2,*]

[1] Faculty of Engineering & Physical Sciences, Chemical & Process Engineering Department, University of Surrey, Guildford, GU2 7XH, UK; estelle.lesache@surrey.ac.uk (E.l.S.)
[2] Smart Separations Ltd, The Technology Centre Surrey Research Park, Guildford, GU2 7YG, UK; p.tsaousis@smartseparations.com (P.T.)
* Correspondence: e.ruiz-trejo@imperial.ac.uk (E.R.T.); t.ramirezreina@surrey.ac.uk; Tel.: +44-148-368-6597 (T.R.R.)

Calculation details:

The effective area of the alumina MCR $Area_{MCR}$, the number of channels $n_{channels}$, the inner surface S_{in} and the specific inner surface per volume Ss_V was determined as follows:

$$Area_{MCR} = \frac{\pi {d_{MCR}}^2}{4}$$

$$n_{channels} = Area_{MCR} \times C_{channels}$$

$$S_{in} = n_{channels} \times \pi d_{channel} \times h$$

$$Ss_V = \frac{S_{in}}{Area_{MCR} h}$$

With d_{MCR} the diameter of the MCR, $C_{channels}$ the concentration of channel per surface area and h the height of the MCR.

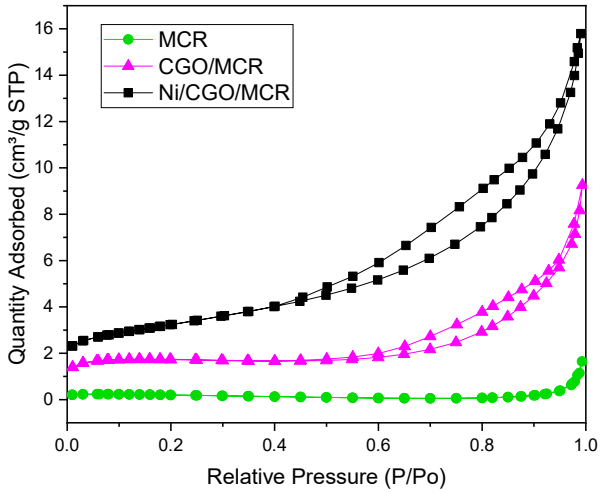

Figure S1. N_2 adsorption-desorption isotherms of MCR, CGO/MCR and Ni/CGO/MCR.

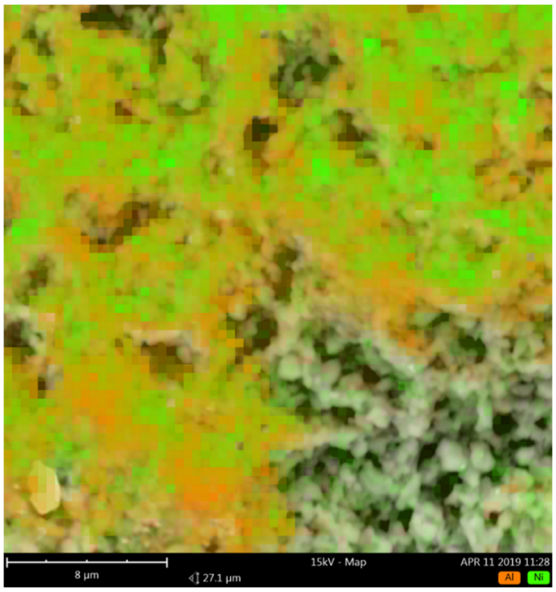

Figure S2. SEM-EDX mapping of Ni/MCR in powder.

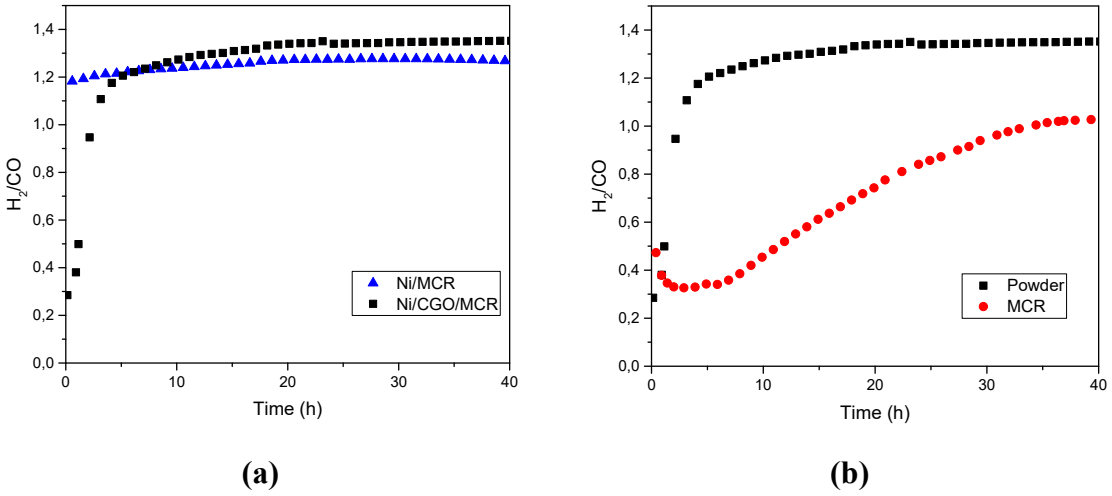

Figure S3. Products distribution for (**a**) Ni/MCR and Ni/CGO/MCR in powder form and (**b**) Ni/CGO/MCR in powder and MCR form.

© 2020 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).