Supplementary Material

Are Rh catalysts a suitable choice for bio-oil reforming? The case of a commercial Rh catalyst in the combined H_2O and CO_2 reforming of bio-oil

José Valecillos*, Leire Landa, Gorka Elordi, Aingeru Remiro, Javier Bilbao and Ana G. Gayubo*

Department of Chemical Engineering, University of the Basque Country (UPV/EHU), P.O. Box 644, 48080 Bilbao (Spain)

* Correspondence: jose.valecillos@ehu.eus (J.V.); anaguadalupe.gayubo@ehu.eus (A.G.G.)

The following figures (S1-S3) are supplementary data for the results and discussions in the article.

1. SR of bio-oil on Rh/ZDC catalyst

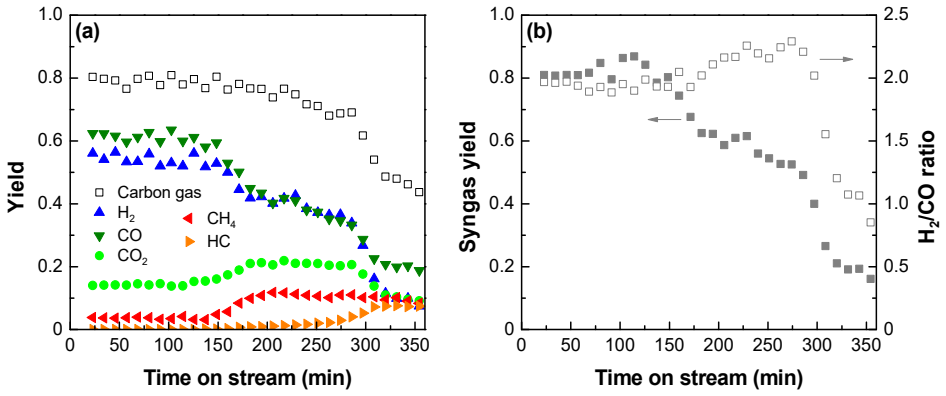


Figure S1. Performance of the Rh/ZDC catalyst in the SR of bio-oil at 700 ºC, H_2O/C ratio of 0.5/1 and space time, 0.125 h: (a) Evolution of the product yields over time on stream; (b) Evolution of the syngas yield and H_2/CO ratio over time on stream.

2. SR of bio-oil on Rh catalysts

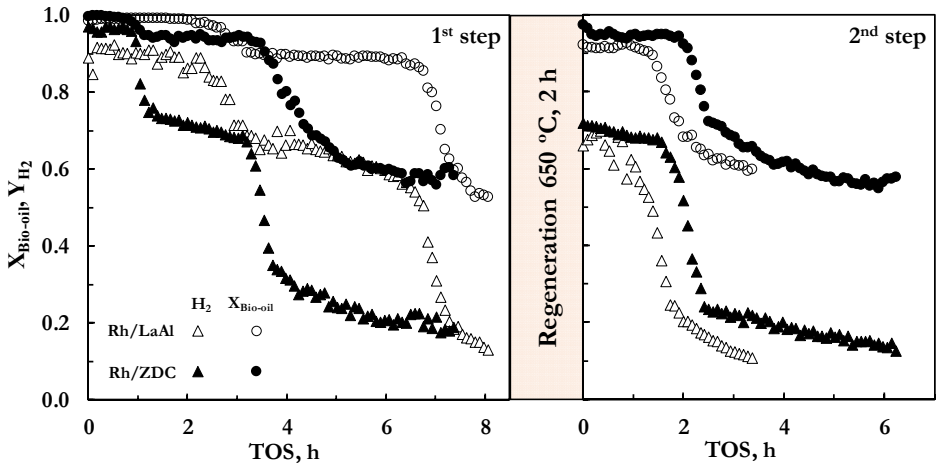


Figure S2. Evolution with time on stream (TOS) of bio-oil conversion and H_2 yield in two reaction steps of raw bio-oil SR with intermediate regeneration (coke combustion with air) over Rh catalysts supported on zirconia dopped ceria (ZDC) or La_2O_3-αAl_2O_3 (LaAl). Reaction conditions: 700 ºC; S/C, 6; space time, 0.15 h.

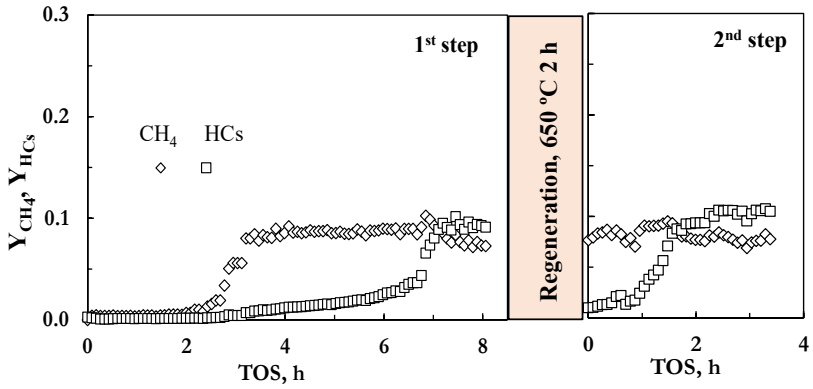


Figure S3. The evolution with time on stream (TOS) of the yield of carbon byproducts (CH_4 and HCs) in two reaction steps of raw bio-oil SR with intermediate in situ regeneration by coke combustion with air over Rh catalyst supported on La_2O_3-αAl_2O_3. Reaction conditions: 700 ºC; S/C, 6; space time, 0.15 h.