

Evaluation of Pt and Re Oxidation State in a Pressurized Reactor: Difference in Reduction Between Gas and Liquid Phase.

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Support information

Table 1: Summary of Pt particle size and dispersion measured using CO pulse chemisorption.

Catalyst	Dispersion (%)	Pt particle size (nm)
4%Pt-4%Re/Al ₂ O ₃	12.5	10.0
4%Pt-4%Re/TiO ₂	14.0	9.0

Table 2: Summary of catalytic performance of the catalysts in selective hydrogenation.

Catalyst	Solvent	Substrate	% Conversion after 24 h (1h)
4%Pt-4%Re/TiO ₂	hexane	<i>N</i> -methylpyrrolidinone ¹	92 (10) ^a
	THF		35 (0) ^a
	hexane	Benzoic acid ²	100 (46) ^b
	dodecane	cyclohexanecarboxylic acid ²	100 (84) ^{a,c}
	dodecane	Octadecanoic acid ²	100 (86) ^a
4%Pt-4%Re/Al ₂ O ₃	hexane	<i>N</i> -methylpyrrolidinone ¹	39(0) ^a

a) Reaction conditions 120 °C, 20 bar H₂

b) Reaction conditions 130 °C, 20 bar H₂

c) In brackets after 2.5 h

References:

¹ R. Burch, X.M. Cao, P. Crawford, P. Goodrich, C. Hardacre, P. Hu, L. McLaughlin, C. Paun, J. Sá, J.M. Thompson, *J. Catal.* (submitted).

² H. G. Manyar, C. Paun, R. Pilus, D. W. Rooney, J. M. Thompson, C. Hardacre, *ChemComm*, 2010, **46**, 6279.