Article

A Surface Redox Reaction for the Synthesis of NiPt Catalysts for the Upgrading of Renewable Ethanol/Methanol Mixtures

Joachim Pasel [1,*], Friederike Woltmann [1], Johannes Häusler [1] and Ralf Peters [1,2,3]

[1] Institute of Energy and Climate Research, IEK-14: Electrochemical Process Engineering,
Forschungszen-trum Jülich GmbH, 52425 Jülich, Germany;
friederike.woltmann@uni-muenster.de (F.W.);
j.haeusler@fz-juelich.de (J.H.); ra.peters@fz-juelich.de (R.P.)
[2] Ruhr-Universität Bochum, Synthetic Fuels, Universitätsstr. 150, 44801 Bochum, Germany
[3] JARA-ENERGY, 52056 Aachen, Germany
* Correspondence: j.pasel@fz-juelich.de; Tel.: +49-2461-61-5140

As a complement to table 3 in the main document, Table S1 shows the values for Ni and Pt weight percentages on the three buffer - based NiPt SRR catalysts, when they were determined, on the one hand, via ICP–OES measurements and, on the other, when they were calculated based on the numbers derived from the experimental syntheses. It is obvious from the table that the reaction time did not have a significant influence on the weight values for the Ni and Pt metals. In the case of Pt, the difference between the values determined via ICP–OES and the calculated values based on weighed portions of the educt chemicals was in the range of approximately 25%. In any case, the calculated values were higher than the experimentally determined ones. These results mean that the deposition of Pt on the activated carbon support proceeded to significant extents. However, when analyzing the corresponding Ni values, it becomes obvious that there is a huge difference between the calculated numbers and data from ICP–OES, which is because the Ni particles dissolved into the buffer solution in large amounts. This is in good agreement with the results from Table 3 in the main document. It can be concluded that the SRR reaction using the KCl/HCl buffer is not yet the optimal solution.

Table S1. Comparison of the weight percentage values for Ni and Pt determined via: (i) the ICP–OES measurements; and (ii) when they were calculated based on the weighed portions of the educt chemicals.

Percentage Values	SRR 15 buffer ICP - OES	SRR 15 buffer calculated	SRR 30 buffer ICP - OES	SRR 30 buffer calculated	SRR 60 buffer ICP - OES	SRR 60 buffer calculated
wt% Ni	0.32	8.59	0.40	8.59	0.40	8.59
wt% Pt	0.25	0.34	0.34	0.33	0.24	0.33