

Accepted Manuscript

Electrochemical synthesis at pre-pilot scale of 1-phenylethanol by cathodic reduction of acetophenone using a solid polymer electrolyte

Alfonso Sáez, Vicente García-García, José Solla-Gullón, Antonio Aldaz, Vicente Montiel

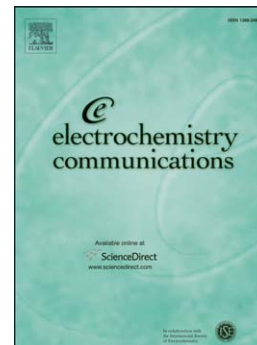
PII: S1388-2481(13)00277-4
DOI: doi: [10.1016/j.elecom.2013.07.018](https://doi.org/10.1016/j.elecom.2013.07.018)
Reference: ELECOM 4876

To appear in: *Electrochemistry Communications*

Received date: 10 June 2013
Revised date: 9 July 2013
Accepted date: 9 July 2013

Please cite this article as: Alfonso Sáez, Vicente García-García, José Solla-Gullón, Antonio Aldaz, Vicente Montiel, Electrochemical synthesis at pre-pilot scale of 1-phenylethanol by cathodic reduction of acetophenone using a solid polymer electrolyte, *Electrochemistry Communications* (2013), doi: [10.1016/j.elecom.2013.07.018](https://doi.org/10.1016/j.elecom.2013.07.018)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Electrochemical synthesis at pre-pilot scale of 1-phenylethanol by cathodic reduction of acetophenone using a solid polymer electrolyte.

Alfonso Sáez, Vicente García-García, José Solla-Gullón, Antonio Aldaz, Vicente Montiel*.

Instituto de Electroquímica, Universidad de Alicante, Apartado 99, 03080 Alicante, Spain.

Abstract

The pre-pilot scale synthesis of 1-phenylethanol was carried out by the cathodic hydrogenation of acetophenone in a 100 cm² (geometric area) Polymer Electrolyte Membrane Electrochemical Reactor. The cathode was a Pd/C electrode. Hydrogen oxidation on a gas diffusion electrode was chosen as anodic reaction in order to take advantage of the hydrogen evolved during the reduction. This hydrogen oxidation provides the protons needed for the synthesis. The synthesis performed with only a solid polymer electrolyte, spe, has lower fractional conversion although a higher selectivity than that carried out using a support-electrolyte-solvent together with a spe. However, the difference between these two cases is rather small and since the work-up and purification of the final product are much easier when only a spe is used, this last process was chosen for the pre-pilot electrochemical synthesis of 1-phenylethanol.

Keywords: 1-phenylethanol, PEMER, solid polymer electrolyte, electrochemical hydrogenation, acetophenone.

* Corresponding author
Email address: vicente.montiel@ua.es (Vicente Montiel)
Phone: +34-965903400 (3628)

Download English Version:

<https://daneshyari.com/en/article/6601577>

Download Persian Version:

<https://daneshyari.com/article/6601577>

[Daneshyari.com](https://daneshyari.com)