Characterisation and processing of aqueous LaNi\textsubscript{0.6}Fe\textsubscript{0.4}O\textsubscript{3} Suspensions into Porous Electrode Layers for Alkaline Water Electrolysis

The colloidal properties and processing of aqueous LaNi\textsubscript{0.6}Fe\textsubscript{0.4}O\textsubscript{3} suspensions into electrode layers with hierarchical pore sizes has been investigated by light scattering, electron microscopy and rheology. We found that the colloidal stability of the oxide particles and the resulting microstructure of the electrode layers were similar when dispersing the particles at their intrinsic pH, or when adding polyvinylpyrrolidone. The addition of the ammonium salt of poly(methacrylic acid) resulted in a poor colloidal stability and the concentrated suspensions became viscoelastic during processing. Addition of rice starch resulted in an increase of the porosity but the cast electrode layers cracked and delaminated.

General information
Publication status: Published
Organisations: Department of Energy Conversion and Storage, Ceramic Engineering & Science, Aragon Hydrogen Foundation, Stockholm University
Number of pages: 8
Pages: 1271-1278
Publication date: 2019
Peer-reviewed: Yes

Publication information
Journal: Journal of the European Ceramic Society
Volume: 39
Issue number: 4
ISSN (Print): 0955-2219
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
Original language: English
Keywords: Alkaline Electrolysis, Ceramic processing, Characterization of ceramic suspensions, Porous electrodes
DOIs:
10.1016/j.jeurceramsoc.2018.10.020
Source: FindIt
Source-ID: 2440952049
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review