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TI

Electrooxidation of hydrazine hydrate using NiaLa catalyst for anion exchange membrane fuel cells

AU

Sakamoto, Tomokazu; Asazawa, Koichiro; Martinez, Ulises; Halevi, Barr; Suzuki, Toshiyuki; et al.

PUB

Journal of Power Sources 234 (Jul 15, 2013): 252-259.

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AB

Abstract (summary) Translate

Carbon supported Ni, La, and Ni1-xLax (0.1ANB<=ANBxANB<=ANB0.9) catalysts were synthesized by an impregnation/freeze-drying procedure followed by thermal annealing. The catalytic activity for electro-oxidation of hydrazine hydrate on anionic ionomer-coated catalysts was evaluated using a (4ANBXANB4) 16-channel electrochemical electrode array in 1.0ANBM KOHANB+ANB1.0ANBM hydrazine hydrate solution at 60ANB degree C. The Ni0.9La0.1/C catalyst oxidized hydrazine hydrate at a lower potential and exhibited higher mass activity in comparison with a similarly made Ni/C catalyst. Chemical insight suggests that the cause of improved performance for the Ni0.9La0.1/C catalyst is likely multifunctional synergism of the components. However, X-ray absorption fine structure (XAFS) and high voltage electron microscopy (HVEM) unexpectedly show some hcp-LaNi5 shells coating the fcc-Ni catalyst particles. As a result of the screening tests, an unsupported Ni0.9La0.1 catalyst was synthesized by spray pyrolysis and tested in a direct hydrazine hydrate fuel cell MEA (DHFC) producing 453ANBmWANBcm-2.

SU

Indexing (details) Cite

Subject	Carbon; Fuel cells; Nickel; High voltages; Hydrates; Catalysts; Arrays; Hydrazines
TI **Title**	Electrooxidation of hydrazine hydrate using NiaLa catalyst for anion exchange membrane fuel cells
AU **Author**	Sakamoto, Tomokazu; Asazawa, Koichiro; Martinez, Ulises; Halevi, Barr; Suzuki, Toshiyuki; Arai, Shigeo; Matsumura, Daiju; Nishihata, Yasuo; Atanassov, Plamen; Tanaka, Hirohisa
LA **Language**	English
DTYPE **Document type**	Journal Article
PUB **Publication title**	Journal of Power Sources
SRC **Source details**	Journal of Power Sources [J. Power Sources]. Vol. 234, pp. 252-259. 15 Jul 2013.
VO **Volume**	234
PG **Pagination**	252-259
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ISSN **ISSN**	0378-7753
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SFL **Subfile**	Mechanical & Transportation Engineering Abstracts (MT); Electronics and Communications Abstracts (EA); CSA / ASCE Civil Engineering Abstracts (CE); Aerospace & High Technology Database (AH)
URL	http://www.sciencedirect.com/science/article/pii/S0378775313002474
PD,YR **Publication date**	Jul 15, 2013
DREV **Date revised**	2013-06-01
AN **Accession number**	17991762
Document URL	http://search.proquest.com/professional/docview/1365152855?accountid=137296
FAV **First available**	2013-06-06
UD **Updates**	2013-06-06
Database	2 databases View list

Search fields

Field Name[1]	Field Code	Example	Description and Notes
Abstract	AB	ab(“X-ray absorption fine structure”)	Use adjacency and/or Boolean operators to narrow search results.
Abstract present	ABANY	"protein targets " AND abany(yes)	Add: *AND ABANY(YES)* to a query to limit retrieval to records with abstracts.
Accession number	AN	an(17991762)	A unique document identification number assigned by the information provider. A record can display multiple accession numbers – depending on the products within which it is stored.
All fields	ALL	all("direct hydrazine hydrate fuel cell")	Searches all fields in bibliographic files. Use adjacency and/or Boolean operators to narrow search results.
All fields + text	--	"direct hydrazine hydrate fuel cell"	Same as ALL field code: searches all fields in bibliographic files.
Author[1] Author First Name Author Last Name	AU AUFN AULN	au(“tanaka, hirohisa”) aufn(hirohisa) auln(tanaka)	Includes all authors. See also First author.
Author affiliation	AF	af(Physical Biosciences Division, Lawrence Berkeley National Laboratory, Berkeley)	
Cited author	CAU	cau(thomas harris)	Authors of cited works.
Cited document title	CTI	cti(“lithium titanate”)	
Cited publication date	CYR	cyr(2009)	
Cited publication title	CPUB	cpub("biotechnology for biofuels")	
Classification code[2]	CC	cc(“electrical properties”)	Not currently displayed
Conference information	CF	cf("offshore structures ") cf(glasgow) cf(sweden) cf(2008)	Includes conference title, location, number, date.
Corporate author	CA	ca(hoechst or schering)	
Date revised	DREV	drev(2013-06-01) drev(>20131231)	Date that the Information provider revised the record. Note that not all Providers identify a date of revision.

DOI	DOI	doi("10.1007/s00707-013-0941-z")	Digital Object Identifier. Search the portion of the DOI that comes after http://dx.doi.org/.
Document feature	DF	df(graphs)	Indicates presence in original article of availability of graphics, tabular data, illustrations, etc.
Document title	TI	ti("Electrooxidation of hydrazine hydrate using NiaLa catalyst")	Includes Title, Alternate Title, Original Title, and Subtitle but not Publication Title (PUB).
Title only	TIO	tio("NiaLa catalyst")	Searches only the Title, not Subtitle or Alternate Title.
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Document type	DTYPE	dtype("journal article")	
First author	FAU	fau("sakamoto, tomokazu)	First name listed in Author field. It is included in Author browse, but its position cannot be specified in the Author browse. See also Author.
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Identifier (keyword)	IF	if(irrigation OR drainage)	
ISBN	ISBN	isbn(9780877035527)	
ISSN	ISSN	issn(0378-7753) issn(03787753)	Also retrieves electronic ISSNs.
Issue	ISS	iss(1)	Also searchable via the Look Up Citation tool.
Journal title	JN, PUB	jn("journal of power sources")	Journal names only. For complete Publication name types, use PUB. Displays in Publication title. Also searchable via the Look Up Citation tool for Publication name.
Language	LA	la(english)	The language in which the document was originally published.

Notes	NT	nt(reprint*)	
Number of pages	PCT	pct(8)	
Pagination	PG	pg(252-259)	See also Start page.
Patent application date	PAD	pad(20040501) pad(2004-05-01) pad(>20101231) pad(20110101-20110630)	Displays in Patent information
Patent application number	PA	pa("10/840183")	Displays in Patent information
Patent assignee	AP	ap(tata)	Displays in Patent information
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Patent publication number	PN	pn(us7249222)	Patent publication number
Publication date	PD	pd(20130715)	
Publication title[2]	PUB	pub("journal of power sources")	Title of publication where document originally appeared. Also searchable via the Look Up Citation tool.
Publication type	PT, STYPE	pt("scholarly journals")	
Publication year	YR, PY	yr(2015) yr(>2011) yr(2013-2014)	Single year or a range of years may be searched. Displays in Publication date.
Publisher	PB	pb("wiley blackwell")	
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Source type	PT, STYPE	stype("conference papers & proceedings")	Searches references cited in the original document.
Start page	FP	fp(134)	Also searchable on the Look Up Citation page. Displays in Pagination.
Subfile	SFL	sfl(metadex) sfl(	The individual database(s) in which the record appears. Also searchable using two-letter codes (see appendix 1,below)
Subject[2]	SU	su(catalysts)	

Updates	UD	ud(20130606)	
Volume	VO	vo(234)	

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