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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.

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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.
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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)
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PD,YR **Publication date**	Jul 15, 2013
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UD **First available**	2013-06-06
Updates	2013-06-06
Database	2 databases View list

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All fields + text	--	"direct hydrazine hydrate fuel cell"	Same as ALL field code: searches all fields in bibliographic files.
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Cited publication date	CYR	cyr(2009)	
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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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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, PAT	pa("10/840183")	Displays in Patent information
Patent assignee	AP, PAT	ap(tata)	Displays in Patent information
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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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Subject[2]	SU	su(catalysts)	
Updates	UD	ud(20130606)	
Volume	VO	vo(234)	

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