Electrochemical removal of NOx with porous cell stacks - DTU Orbit (06/02/2019)

**Electrochemical removal of NO\textsubscript{x} with porous cell stacks**

In this study porous cell stacks were investigated for their ability to remove NO\textsubscript{x} electrochemically. The cell stacks were made from laminated tapes of porous electrolyte Ce\textsubscript{0.9}Gd\textsubscript{0.1}O\textsubscript{1.95} and composite electrodes of La\textsubscript{1−x}Sr\textsubscript{x}MnO\textsubscript{3} (x = 0.15, and 0.5) and ceria doped with Gd or Pr. The cell stacks were infiltrated with nano-particles of pure ceria, Ce\textsubscript{0.9}Gd\textsubscript{0.1}O\textsubscript{1.95} and Ce\textsubscript{0.8}Pr\textsubscript{0.2}O\textsubscript{2−δ} after sintering. A gas stream containing NO were sent through the cell stack. When the cell stacks were polarised with 0.75 V per cell then it was possible to remove some of the NO\textsubscript{x} in the temperature interval of 250–400 °C. The cell stacks infiltrated with ceria showed the highest activity, while the ones infiltrated with Ce\textsubscript{0.9}Gd\textsubscript{0.1}O\textsubscript{1.95} had the highest selectivity towards NO compared to O\textsubscript{2}. When the cell stack was polarised with 1.5 V for each cell it was possible to remove up to 35% of NO present.

**General information**

State: Published
Organisations: Electrochemistry, Fuel Cells and Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy
Contributors: Werchmeister, R. M. L., Kammer Hansen, K., Mogensen, M. B.
Pages: 1554-1561
Publication date: 2010
Peer-reviewed: Yes

**Publication information**

Journal: Materials Research Bulletin
Volume: 45
Issue number: 11
ISSN (Print): 0025-5408
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.74 SJR 0.746 SNIP 0.866
Web of Science (2017): Impact factor 2.873
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.39 SJR 0.711 SNIP 0.862
Web of Science (2016): Impact factor 2.446
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.42 SJR 0.71 SNIP 0.949
Web of Science (2015): Impact factor 2.435
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.47 SJR 0.764 SNIP 1.034
Web of Science (2014): Impact factor 2.288
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.11 SJR 0.706 SNIP 0.981
Web of Science (2013): Impact factor 1.968
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.14 SJR 0.822 SNIP 1.155
Web of Science (2012): Impact factor 1.913
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.26 SJR 0.881 SNIP 1.217
Web of Science (2011): Impact factor 2.105
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1