Investigation on low room-temperature resistivity Cr/(Ba0.85Pb0.15)TiO3 positive temperature coefficient composites - DTU Orbit (31/12/2018)

Investigation on low room-temperature resistivity Cr/(Ba0.85Pb0.15)TiO3 positive temperature coefficient composites

Low room-temperature resistivity positive temperature coefficient (PTC) Cr/(Ba0.85Pb0.15)TiO3 composites were produced via a reducing sintering and a subsequent oxidation treatment. The effects of metallic content and processing conditions on materials resistivity–temperature properties were discussed. Using these special processes, the prepared composite with 20 wt% Cr possessed low room-temperature resistivity (2.96 Ω cm at 25 °C) and exhibited PTC effect (resistivity jump of 10), which is considered as a promising candidate for over-current protector when working at low voltage. The grain-boundary potential barrier of the prepared PTC composite was evaluated based on the Heywang model and the experimental data. The potential barrier was from 0.00 to 0.11 V in the temperature range of 180–270 °C, which is believed to be the first reported intrinsic parameter for PTC composite, determined from the experiment.

General information
State: Published
Organisations: Ceramic processing, Fuel Cells and Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy, Nanyang Technological University, Tianjin University
Contributors: He, Z., Ma, J., Qu, Y., Wang, C.
Pages: 116-119
Publication date: 2009
Peer-reviewed: Yes

Publication information
Journal: Materials Science & Engineering: B. Solid-state Materials for Advanced Technology
Volume: 164
Issue number: 2
ISSN (Print): 0921-5107
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.81 SJR 0.779 SNIP 0.917
Web of Science (2017): Impact factor 3.316
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.4 SJR 0.715 SNIP 1.044
Web of Science (2016): Impact factor 2.552
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.31 SJR 0.703 SNIP 1.084
Web of Science (2015): Impact factor 2.331
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.58 SJR 0.792 SNIP 1.336
Web of Science (2014): Impact factor 2.169
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.11 SJR 0.754 SNIP 1.243
Web of Science (2013): Impact factor 2.122
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.82 SJR 0.792 SNIP 1.173
Web of Science (2012): Impact factor 1.846
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.66 SJR 0.755 SNIP 1.076
Web of Science (2011): Impact factor 1.518
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.922 SNIP 1.094
Web of Science (2010): Impact factor 1.1
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.944 SNIP 1.212