Influence of hydroxyl content of binders on rheological properties of cerium-gadolinium oxide (CGO) screen printing inks - DTU Orbit (22/12/2018)

Influence of hydroxyl content of binders on rheological properties of cerium-gadolinium oxide (CGO) screen printing inks

The influence of hydroxyl content of binders on rheological properties of screen printing inks is investigated. The actual amount of hydroxyl groups is correlated to the level of hyper-entanglement that characterizes the binders in solution. Three of the most used binders (ethyl cellulose, and two vinyl resins) were selected and characterized in solution via viscosimetry method. A high degree of hyper-entanglement was observed for ethyl cellulose polymers, whereas a mitigated effect characterized the two vinyl resins. Cerium-gadolinium oxides (CGO)-based inks, prepared using the selected binders, were investigated by means of rheology. The vinyl resin at higher hydroxyl content and low level of hyper-entanglement was demonstrated to impart superior printability properties.

General information
State: Published
Organisations: Department of Energy Conversion and Storage, Ceramic Engineering & Science, Applied Electrochemistry, Mixed Conductors, Haldor Topsoe AS
Contributors: Marani, D., Gadea, C., Hjelm, J., Hjalmarsson, P., Wandel, M., Kiebach, W.
Number of pages: 10
Pages: 1495–1504
Publication date: 2015
Peer-reviewed: Yes

Publication Information
Journal: Journal of the European Ceramic Society
Volume: 35
Issue number: 5
ISSN (Print): 0955-2219
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 3.55 SJR 1.068 SNIP 1.698
Web of Science (2017): Impact factor 3.794
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.25 SJR 1.142 SNIP 1.888
Web of Science (2016): Impact factor 3.454
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 3.03 SJR 1.135 SNIP 1.817
Web of Science (2015): Impact factor 2.933
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.16 SJR 1.163 SNIP 2.083
Web of Science (2014): Impact factor 2.947
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.57 SJR 1.111 SNIP 1.79
Web of Science (2013): Impact factor 2.307
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.81 SJR 1.293 SNIP 2.207
Web of Science (2012): Impact factor 2.36
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.83 SJR 1.343 SNIP 2.195
Web of Science (2011): Impact factor 2.353