A Stability Study of Alkali Doped PBI Membranes for Alkaline Electrolyzer Cells

Polybenzimidazole membranes in a linear, a crosslinked and a thermally cured form were subjected to aging in 6 M aqueous KOH at 85 ºC for periods of up to 176 days. The aged membranes were characterized with respect to weight loss, mechanical properties and ionic conductivity. The area specific conductivity was similar to a commercial Zirfon membrane and suitable for a water electrolyzer. Some chemical degradation was seen during the aging period, but the crosslinked and the cured materials were both integral after 176 days of aging. A simplified electrolyzer test cell was operated successfully.

General information
State: Published
Organisations: Department of Energy Conversion and Storage, Proton conductors, Siemens A/S
Contributors: Jensen, J. O., Aili, D., Hansen, M. K., Li, Q., Bjerrum, N. J., Christensen, E.
Number of pages: 10
Pages: 1175-1184
Publication date: 2014
Peer-reviewed: Yes

Publication Information
Journal: ECS Transactions
Volume: 64
Issue number: 3
ISSN (Print): 1938-5862
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 0.44 SJR 0.225 SNIP 0.252
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.4 SJR 0.228 SNIP 0.253
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.36 SJR 0.211 SNIP 0.244
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.36 SJR 0.212 SNIP 0.234
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.27 SJR 0.192 SNIP 0.231
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.29 SJR 0.241 SNIP 0.26
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 0.36 SJR 0.261 SNIP 0.28
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.249 SNIP 0.251
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.242 SNIP 0.27
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.254 SNIP 0.255
Scopus rating (2007): SJR 0.213 SNIP 0.206
Scopus rating (2006): SJR 0.134 SNIP 0.073
Original language: English
Keywords: Alkaline FCs, Ion Transport
Electronic versions:
A_Stability_Study_of_Alkali.pdf