

Electrical performance and stability in PEMFC with the crosslinked ETFE membrane

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Radiation grafting technology could control selectively the degree of grafting of methyl styrene on the ETFE film, changing ion exchange capacity (IEC), water uptake (WU), and degree of crosslinking (DC). This study tried to correlate DG, WU, and DC to electric current in PEMFC. Moderately grafted and crosslinked ETFE membrane could generate much more current compared to uncrosslinked ETFE with high IEC and WU. Crosslinked ETFE membrane tended to fluctuate electric current periodically with a long term period of several ten minutes, but it was likely to suppress such fluctuation owing to its higher WU compared to Nafion 115 membrane.