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Corrigendum

# Corrigendum to "A comparison of sodium borohydride as a fuel for proton exchange membrane fuel cells and for direct borohydride fuel cells" [J. Power Sources 155 (2006) 329–339]

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The author regrets some errors which appeared in the above-mentioned review article.

The errors are in the unit of water density. The water density was 1000 mg/ml, but this was confused with 1 mg/ml. Five mistakes occurred within the text of page 336, in Sections 3.1 and 3.2.1. Fig. 7 and Table 7 also contained some errors.

In the last paragraph of Section 3.1 the sentence:

Considering the optimum compositions of the $NaBH_4$–NaOH aqueous feeding solution, i.e. 20% $NaBH_4$–10% NaOH for B-PEMFC and 10% $NaBH_4$–20% NaOH for DBFC, the volume of $NaBH_4$ aqueous solution consumed by B-PEMFC for the generation of 1 W was calculated to be 19.28 ml $min^{-1}$, which was 78 and 58 vol.% of the 8e-DBFC and 6e-DBFC values, respectively.

Should have read:

Considering the optimum compositions of the $NaBH_4$–NaOH aqueous feeding solution, i.e. 20% $NaBH_4$–10% NaOH for B-PEMFC and 10% $NaBH_4$–20% NaOH for DBFC, the volume of $NaBH_4$ aqueous solution consumed by B-PEMFC for the generation of 1 W was calculated to be 0.02 ml $min^{-1}$, which was 78 and 58 vol.% of the 8e-DBFC and 6e-DBFC values, respectively.

In Section 3.2.1 the final paragraph should read:

In each fuel cell, the volumes of $NaBH_4$–NaOH aqueous solution are also listed in Table 7. In B-PEMFC, 0.39 ml $min^{-1}$ of $NaBH_4$ aqueous solution was needed. At the same time, based on the results reported in the literature by Kogima et al. [3], 71 mg of Pt–$LiCoO_2$ catalyst is needed for the $NaBH_4$ hydrolysis reaction. However, in 8e-DBFC, 0.49 ml $min^{-1}$ of 10% $NaBH_4$ aqueous solution was needed. Therefore, the auxiliary reactor including catalysts for the $NaBH_4$ hydrolysis reaction, with a volume of 0.39 ml, is separately equipped out of the fuel cell in B-PEMFC. On the other hand, the space to accommodate 0.49 ml within the fuel cell is required in 8e-DBFC systems.

There were also errors in the values in Fig. 7 and Table 7. The corrected table and figure are reproduced below:

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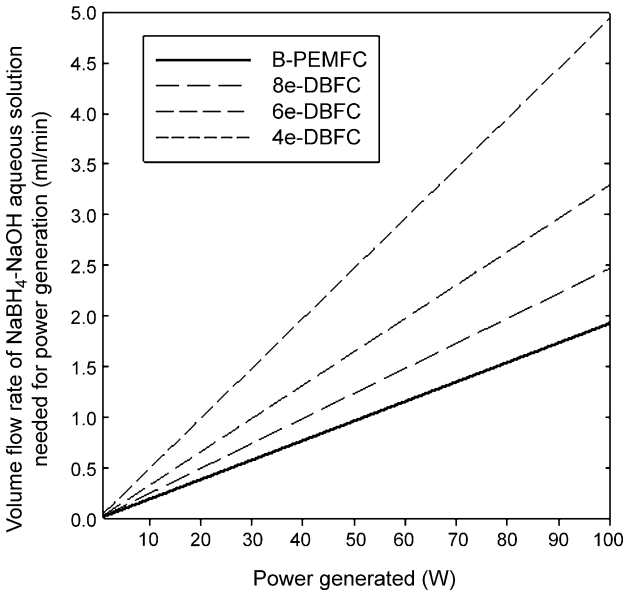


Fig. 7. Volume flow rates of $NaBH_4$–NaOH aqueous solution consumed at various power generations in each fuel cell system (without considering the crossover in the DBFC).

Table 7
Comparison of feed rate between B-PEMFC and DBFC in portable application with a power output of 20 W (without considering the crossover in the DBFC)

| Fuel ceil systems | Feed rate of $NaBH_4$ mg $min^{-1}$ (operational voltage; V) | Feed rate of NaOH; mg $min^{-1}$ | Feed rate of water; mg $min^{-1}$ | Feed rate of $NaBH_4$–NaOH aqueous solution; mg $min^{-1}$ | Feed rate of $NaBH_4$–NaOH aqueous solution; ml $min^{-1}$ |
|---|---|---|---|---|---|
| B-PEMFC[a] | 84.0 (0.7) | 42.0 | 294.0 | 420.0[a] | 0.39 |
| 8e-DBFC[b] | 58.8 (1.0) | 117.6 | 411.6 | 588.0[b] | 0.49 |
| 6e-DBFC[b] | 78.4 (1.0) | 156.8 | 548.8 | 784.0[b] | 0.66 |
| 4e-DBFC[b] | 117.6 (1.0) | 235.2 | 823.2[b] | 1176.0[b] | 0.99 |

[a] 20% $NaBH_4$–10% NaOH solution, S.G. = 1.09 [12].
[b] 10% $NaBH_4$–20% NaOH solution, S.G. = 1.19 [12].