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Erratum

Erratum to "Theoretical analysis of the role of interfaces in transport through oxygen ion and electron conducting membranes" [J. Power Sources 147 (2005) 8–31]

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The Publisher regrets a number of errors which were included in the above-mentioned paper.

On page 24, in the first paragraph of the right hand column, the text read:

Additional cases can be similarly considered. They are as follows:

Suppose $r'_i|I_i| < r'_e|I_e|$, so that $\mu'_{O_2} > \mu^{I}_{O_2}$, and $r''_i|I_i| < r''_e|I_e|$, so that $\mu''_{O_2} < \mu^{II}_{O_2}$. Fig. 14 shows the expected variation of the chemical potential of oxygen through the membrane for $\mu^{II}_{O_2} = \mu^{I}_{O_2}$. Note that in this case, the μ_{O_2} in the membrane is lower than that in the gas phase.

Suppose now $r'_i|I_i| > r'_e|I_e|$, so that $\mu'_{O_2} < \mu^{I}_{O_2}$, and $r''_i|I_i| > r''_e|I_e|$, so that $\mu''_{O_2} > \mu^{II}_{O_2}$.

But it should have read:

Additional cases can be similarly considered. They are as follows:

Suppose $r'_i|I_i| > r'_e|I_e|$, so that $\mu'_{O_2} < \mu^{I}_{O_2}$, and $r''_i|I_i| < r''_e|I_e|$, so that $\mu''_{O_2} < \mu^{II}_{O_2}$. Fig. 14 shows the expected variation of the chemical potential of oxygen through the membrane for $\mu^{II}_{O_2} = \mu^{I}_{O_2}$. Note that in this case, the μ_{O_2} in the membrane is lower than that in the gas phase.

Suppose now $r'_i|I_i| < r'_e|I_e|$, so that $\mu'_{O_2} > \mu^{I}_{O_2}$, and $r''_i|I_i| > r''_e|I_e|$, so that $\mu''_{O_2} > \mu^{II}_{O_2}$.

In the figure caption for Figs. 18 and 20 there were errors in the text. The corrected figures and captions are below.

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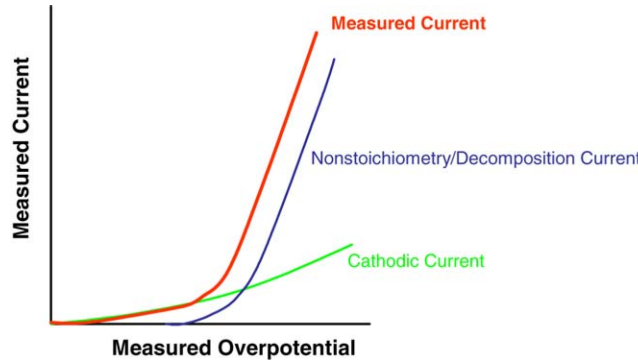

Fig. 18. A schematic illustration of the measured current (or current density) (▬) vs. measured overpotential (corrected for the ohmic drop) using a three-electrode system under an applied dc voltage. It contains two parts: (a) the cathodic current (▬), namely due to the reaction $\frac{1}{2}O_2 + 2e' \rightarrow O^{2-}$, and (b) the current due to the development of nonstoichiometry or decomposition (▬). In practice, it is quite possible that the nonstoichiometry/decomposition current may be much greater than the cathodic current. Under such conditions, the three-electrode system can grossly overestimate the cathodic activity. The schematic shows both current and overpotential plotted on linear scales. If the current is plotted on a logarithmic scale, the curves will be convex up.

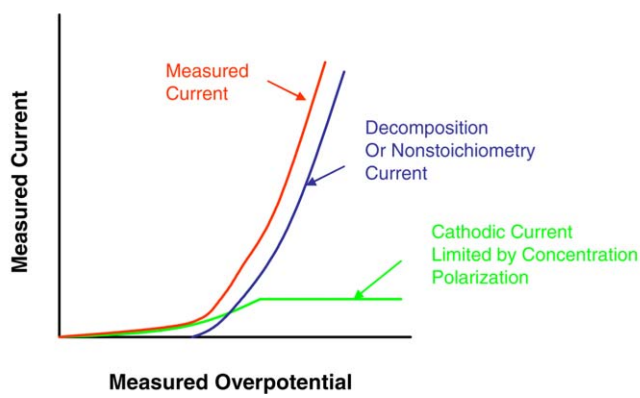

Fig. 20. A schematic illustration of the measured current (▬) vs. the measured overpotential using the three-electrode system with significant concentration polarization present. The measured current consists of two contributions: (a) the cathodic current (▬), namely $\frac{1}{2}O_2 + 2e' \rightarrow O^{2-}$, which becomes concentration polarization limited beyond some applied voltage, and (b) the decomposition or nonstoichiometry current (▬), which begins beyond some applied voltage. The schematic shows both current and overpotential plotted on linear scales. If the current is plotted on a logarithmic scale, the curves will be convex up.