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Correction

Correction: Duburg et al. Composite Polybenzimidazole Membrane with High Capacity Retention for Vanadium Redox Flow Batteries. *Molecules* 2021, *26*, 1679

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The authors wish to make the following changes to their paper [1].

2. Results

Original:

Table 1. V(IV) diffusion through NR212, FAP-450, and PP-PBI.

Name	Slope [V(IV)] vs. t ($M{\cdot}L^{-1}{\cdot}h^{-1}$)	V(IV) Diffusion ($cm^2{\cdot}min^{-1}$)
NR212	$(650 \pm 8) \times 10^{-6}$	$(744 \pm 9) \times 10^{-8}$
FAP-450	$(259 \pm 1) \times 10^{-6}$	$(351 \pm 1) \times 10^{-8}$
PP-PBI	$(18 \pm 2) \times 10^{-6}$	$(14 \pm 1) \times 10^{-8}$

To be replaced with:

Table 1. V(IV) diffusion through NR212, FAP-450, and PP-PBI.

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Explanation for the correction:

We observed an error in the calculations of the vanadium (IV) diffusion values; as a result of this, the order of magnitude of these values has been corrected to 10^{-9} $cm^2{\cdot}min^{-1}$ from 10^{-8} $cm^2{\cdot}min^{-1}$.

3. Discussion

Original:

V(IV) diffusion through the composite PP-PBI membrane was found to be the lowest ($(14 \pm 1) \times 10^{-8}$ $cm^2{\cdot}min^{-1}$), while commercial Nafion® NR212 suffered the highest V(IV) diffusion ($(744 \pm 9) \times 10^{-8}$ $cm^2{\cdot}min^{-1}$), To be replaced with:

V(IV) diffusion through the composite PP-PBI membrane was found to be the lowest ($(14 \pm 1) \times 10^{-9}$ cm^2·min^{-1}), while commercial Nafion® NR212 suffered the highest V(IV) diffusion ($(744 \pm 9) \times 10^{-9}$ cm^2·min^{-1}).

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We observed an error in the calculations of the vanadium (IV) diffusion values; as a result of this, the order of magnitude of these values has been corrected to 10^{-9} cm^2·min^{-1} from 10^{-8} cm^2·min^{-1}.

4. Materials and Methods

Original:

The dry weight of the membrane (w_{dry}) was obtained after drying it under vacuum at 55 °C for 22 h. The weight measurement was carried out in a closed vial to limit the uptake of moisture from the air. Then, the weight of the membrane in the wet state (w_{wet}) was determined after immersion for 2 days in deionized water or in 1.6 M vanadium in 2 M H_2SO_4 and 0.05 M H_3PO_4 electrolyte (SOC −50%, 3.5 oxidation state, Oxkem, Reading, United Kingdom), followed by the removal of droplets on the surface with a tissue. In this case, the wet weight was measured in a vial to reduce the evaporation of water from the membrane. Lastly, water and electrolyte uptake of pristine *m*-PBI and of commercial membranes NR212 and FAP-450 was calculated according to Equation (1).

$$\text{Uptake} = \frac{w_{wet} - w_{dry}}{w_{dry}} \cdot 100\% \quad (1)$$

To be replaced with:

The dry weight of the membrane (m_{dry}) was obtained after drying it under vacuum at 55 °C for 22 h. The weight measurement was carried out in a closed vial to limit the uptake of moisture from the air. Then, the weight of the membrane in the wet state (m_{wet}) was determined after immersion for 2 days in deionized water or in 1.6 M vanadium in 2 M H_2SO_4 and 0.05 M H_3PO_4 electrolyte (SOC −50%, 3.5 oxidation state, Oxkem, Reading, United Kingdom), followed by the removal of droplets on the surface with a tissue. In this case, the wet weight was measured in a vial to reduce the evaporation of water from the membrane. Lastly, water and electrolyte uptake of pristine *m*-PBI and of commercial membranes NR212 and FAP-450 was calculated according to Equation (1).

$$\text{Uptake} = \frac{m_{wet} - m_{dry}}{m_{dry}} \cdot 100\% \quad (1)$$

Explanation for the correction:

The change described above has been made to be in line with the commonly used scientific unit of mass (*m*).

Original:

The measurements were carried out by filling two quartz cuvettes (Hellma Analytics, Zumikon, Switzerland) with 2.5 mL of solution from the $MgSO_4$ flask. Each time, the measured solution was transferred back to the $VOSO_4$ flask to avoid significant volume changes.

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Explanation for the correction:

The correction described above has been made as the measured solutions were transferred back into the $MgSO_4$ flask and not the $VOSO_4$ flask.

Original:

Lastly, the change in weight (Δw) was calculated according to Equation (4). In Equation (4), w_i and w_f are the initial and final weight, respectively.

$$\Delta w = \frac{wf - wi}{wi} \cdot 100\% \tag{4}$$

To be replaced with:

Lastly, the change in weight (Δm) was calculated according to Equation (4). In Equation (4), m_i and m_f are the initial and final weight, respectively.

$$\Delta m = \frac{mf - mi}{mi} \cdot 100\% \tag{4}$$

Explanation for the correction:

The change described above has been made to be in line with the commonly used scientific unit of mass (m).

Original:

Efficiencies and discharge capacity are calculated according to Equations (5)–(8). In Equations (5)–(7), Q_{ch} and Q_{dis} are the charges for the discharge and the charge process, while V_{dis} and V_{ch} are the discharge and charge volumes. In Equation (8), $Q_{theoretical}$ is the theoretical charge, n is the number of moles, F is the Faraday constant (96,485 C·mol^{-1}), and z is the charge.

$$\eta C = \frac{Q_{dis}}{Q_{ch}} \cdot 100\% \tag{5}$$

$$\eta V = \frac{V_{dis}}{V_{ch}} \cdot 100\% \tag{6}$$

$$\eta E = (\eta C \cdot \eta V) \cdot 100\% \tag{7}$$

$$Q_{theoretical} = I \cdot t = n \cdot (F \cdot z) \tag{8}$$

To be replaced with:

Efficiencies and discharge capacity are calculated according to Equations (5)–(8). In Equations (5)–(7), Q_{ch} and Q_{dis} are the charges for the discharge and the charge process, while $\overline{U}_{ch}$ and $\overline{U}_{dis}$ are the average voltages during charge and discharge, respectively. In Equation (8), $Q_{theoretical}$ is the theoretical charge, n is the number of moles, F is the Faraday constant (96,485 C·mol^{-1}), and z is the number of electrons associated with the electrochemical reaction.

$$\eta C = \frac{Q_{dis}}{Q_{ch}} \cdot 100\% \tag{5}$$

$$\eta V = \frac{\overline{U}_{dis}}{\overline{U}_{ch}} \cdot 100\% \tag{6}$$

$$\eta E = (\eta C \cdot \eta V) \cdot 100\% \tag{7}$$

$$Q_{theoretical} = I \cdot t = n \cdot (F \cdot z) \tag{8}$$

Explanation for the correction:

The changes described above were made to avoid confusion between the average voltages in the cell ($\overline{U}$) and the unit volt (V). Furthermore, the description of this symbol was corrected to the average voltage instead of volume, which was a typing mistake. The last change was made to provide a clearer description of the symbol z as “charge” did not provide the desired clarity.

5. Conclusions

Original:

This asymmetric composite membrane showed the lowest V(IV) diffusivity ((14 ± 1) × 10^{-8} $cm^2 \cdot min^{-1}$) as compared to the commercial Nafion® NR212 and Fumasep® FAP-450, (744 ± 9) × 10^{-8} and (351 ± 1) × 10^{-8} $cm^2 \cdot min^{-1}$, respectively.

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Explanation for the correction:

We observed an error in the calculations of the vanadium (IV) diffusion values; as a result of this, the order of magnitude of these values has been corrected to 10^{-9} $cm^2 \cdot min^{-1}$ from 10^{-8} $cm^2 \cdot min^{-1}$.

The authors apologize for any inconvenience caused and state that the scientific conclusions are unaffected. This correction was approved by the Academic Editor. The original publication has also been updated.

Reference

1. Duburg, J.C.; Azizi, K.; Primdahl, S.; Hjuler, H.A.; Zanzola, E.; Schmidt, T.J.; Gubler, L. Composite Polybenzimidazole Membrane with High Capacity Retention for Vanadium Redox Flow Batteries. *Molecules* **2021**, *26*, 1679. [CrossRef] [PubMed]