Peer review history for:

Karels S, Felix C, Pasupathi S. Development of unsupported IrO2 nano-catalysts for polymer electrolyte membrane water electrolyser applications. S Afr J Sci. 2024;120(3/4), Art. #16026. https://doi.org/10.17159/sajs.2024/16026

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Development of unsupported IrO2 nano-catalysts for polymer electrolyte membrane water electrolyser applications [peer review history]. S Afr J Sci. 2024;120(3/4), Art. #16026. https://doi.org/10.17159/sajs.2024/16026/peerreview

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Reviewer A: Round 1
Date completed: 09 September 2023
Recommendation: Revisions required
Conflicts of interest: None

Does the manuscript fall within the scope of SAJS?
Yes/No
Is the manuscript written in a style suitable for a non-specialist and is it of wider interest than to specialists alone?
Yes/No
Does the manuscript contain sufficient novel and significant information to justify publication?
Yes/No
Do the Title and Abstract clearly and accurately reflect the content of the manuscript?
Yes/No
Is the research problem significant and concisely stated?
Yes/No
Are the methods described comprehensively?
Yes/No
Is the statistical treatment appropriate?
Yes/No/Not applicable/Not qualified to judge
Do you believe somebody with more methodological expertise (in the area of this study) than yourself needs to review this?
Yes/No
If yes, can you suggest the type of expertise needed
Not applicable
Are the interpretations and conclusions justified by the research results?
Yes/Partly/No
Please rate the manuscript on overall contribution to the field
Excellent/Good/**Average**/Below average/Poor
Please rate the manuscript on language, grammar and tone
Excellent/**Good**/Average/Below average/Poor
Is the manuscript succinct and free of repetition and redundancies?
Yes/No
Are the results and discussion confined to relevance to the objective(s)?
Yes/No

The number of tables in the manuscript is

Too few/**Adequate**/Too many/Not applicable

The number of figures in the manuscript is

Too few/**Adequate**/Too many/Not applicable

Is the supplementary material relevant and separated appropriately from the main document?

Yes/No/**Not applicable**

Please rate the manuscript on overall quality

Excellent/Good/**Average**/Below average/Poor

Is appropriate and adequate reference made to other work in the field?

Yes/No

Is it stated that ethical approval was granted by an institutional ethics committee for studies involving human subjects and non-human vertebrates?

Yes/No/**Not applicable**

If accepted, would you recommend that the article receives priority publication?

Yes/**No**

Are you willing to review a revision of this manuscript?

Yes/**No**

Select a recommendation:

Accept / **Revisions required** / Resubmit for review / Decline

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Yes/No

Comments to the Author:

Improve the quality of the figures.

There is not much difference in the electrochemical properties of the synthesized and commercial IrO_2 as shown in Table-3, however, the CP analysis shows a big difference in performance. that's why, you need to explain more with appropriate references.

Author response to Reviewer A: Round 1

Improve the quality of the figures

AUTHOR: The quality of Figures 1, 5, 6, and 7 were improved for easier interpretation. The Tafel plots were reworked and plotted as separate figures to make it easier to interpret the data.

There is not much difference in the electrochemical properties of the synthesized and commercial IrO_2 as shown in Table-3, however, the CP analysis shows a big difference in performance. that's why, you need to explain more with appropriate references.

AUTHOR: Additional references were included in the manuscript, especially to the electrochemical analyses, to support the improved performances of the synthesized IrO2 catalysts over the commercial IrO2 catalyst. The commercial IrO_2 is an amorphous type material, which is known to be more active but less stable than its more crystalline counterparts. Moreover, the XRD patterns of commercial IrO_2 catalyst exhibited sharp peaks for metallic Ir which is known to be less stable than IrO_2.

Reviewer E: Rounds 1 and 2

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