Reviewer 2

Comments and Suggestions for Authors

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In the submission titled “Decomposition of Formic Acid and Acetic Acid into Hydrogen using Graphitic Carbon Nitride Supported Single Metal Catalyst”, Isahak *et al.* reported a study for the development of metal-incorporated graphitic carbon nitride (g-C_3N_4) and applied the as-synthesized catalyst to the decomposition reactions. The authors performed the systematic characterizations of as-synthesized g-C_3N_4 by using the various experimental techniques (PXRD, FESEM, BET etc) and demonstrated the optimal decomposition of formic acid with the Pd-incorporated g-C_3N_4. This field is certainly emerging and thus this study looks interesting. Overall, I recommend the publication of this paper, but the following questions and comments should be addressed by the authors.

(i) In the introduction part, the authors should consider to provide the prospective audience a better background information for the g-C_3N_4–based catalytic reactions. The following literatures could serve this purpose on some aspects; *Appl. Catal. B*, 2015, 176–177, 44–52 and *Catal. Sci. Technol.*, 2021, 11, 6401–6410.

Answer: Several literature from suggested journal platform has been included in the manuscript from line 75-111 in Introduction part.

(ii) Regarding the “Materials and Methods” section, the author should clearly describe the details about the chemical reagents such as the manufacturer, impurity, and so on.

Answer: The chemical reagents s and details such as the manufacturer, impurity has been added in section Materials and Methods as “2.1 Materials and reagents” in manuscript (line 119-125).

(iii) Based on the FESEM image, the authors should clearly visualize the scale bar. It is too obscure in the current version.

Answer:

The scale bar of FESEM in figure 4 has been improved to more clear vision.

(iv) According to the results from the catalytic reactions with Pd-incorporated g-C_3N_4, the increase of reaction temperature up to 70 degree showed the highest yield of gas production. I’m wondering how the author set the maximum temperature for those reactions. What will happen in the temperature above 70 degree?

Answer:

Thank you for the comment. Normally, dehydrogenation or decomposition of formic acid into hydrogen was performed at temperature ranging of 260K to 340K (Less than 70 °C) and the higher reaction temperature would produce other byproduct such as carbon monoxide due to dehydration reaction. So, for this study, we chose maximum 70 °C to study formic acid catalytic dehydrogenation.

(v) At least under the optimal catalytic condition, the author should report the chemical stability of Pd-incorporated g-C_3N_4 based on the reusability test.

Answer:The data for reusability study has been provided in Table 4.

- Minor comments –

I found some typos. The author should carefully check the typos in the entire manuscript.

(i) In abstract, "… three catalyst loading of 1 wt%, 3 wt% dan 5 wt% of Pd over g-C3N4 …"

The word of "dan" should be changed to "and".

Answer: In abstract, the word of "dan" has been changed to "and" as in line 25 of manuscript.

(ii) In the section of 3.1, "… 5 wt% Pd/g-C_3N_4 catalyst have the highest XRD peak of Pd° compared to …"

What means the word of "Pd°" ?

Answer: In XRD section the symbol of "o" in Pd° means by the decrease oxidation number of Pd to zero, which become metal Pd.

(iii) In the section of 3.2, "The catalyst performed well at 70oC by producing gas (H_2 and CO_2), …"

The unit of temperature should be correctly changed.

Answer: The typo of symbol in sentence of "The catalyst performed well at 70oC by producing gas (H_2 and CO_2), …" has been changed to , "The catalyst performed well at 70°C by producing gas (H_2 and CO_2), …" as in line 273.