

Muhammad Faizal **AUTHOR**

JEENG-02305-2021-02

Purification of Synthetic Gas from Fine Coal Waste Gasification as a Clean Fuel

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DETAILS

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1 version	JEENG-02305-2021-01	2021-03-08	🔍 Show decision letter
2 version	JEENG-02305-2021-02	2021-04-14	🔍 Show decision letter

TITLE AND TYPE

1

Title

Purification of Synthetic Gas from Fine Coal Waste Gasification as a Clean Fuel

Type

Research paper

ABSTRACT

2

The presence of CO₂ in the syngas is attracting more attention in terms of reducing the greenhouse gas emissions in its utilisation. The aim of this study was to purify syngas from the CO₂ content of fine coal gasification. Fine coal is gasified with and without absorption using CaO, which is hydrated to Ca(OH)₂ in the modified updraft gasifier at 450-700 °C. Apart from investigating the CO₂ absorption process, the gasification process also evaluates the influence of temperature in terms of its synergy with Ca(OH)₂. The best conditions for the gasification process are achieved at 700 °C. The content of CO₂ was proven to be well absorbed, which is characterised by a decrease in the CO₂ content and an increase in H₂ in syngas. After the absorption process, the H₂ content obtained increased from 42.6 mole% to 48.8 mole% of H₂ at 700°C. The H₂ ratio also increased after absorption to 2.57 from the previous value of 2.23. The highest absorption efficiency of CO₂ by Ca(OH)₂ occurred at 700°C at 50.63%. With an increase in temperature in the gasification process with absorption, the CO₂ content decreased dramatically from 16.9 mole% to 3.9%. Ca(OH)₂ has good absorption power at CO₂ at high temperatures.

AUTHORS

3

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Contribution
A - Research concept and design
E - Critical revision of the article
F - Final approval of the article

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AUTHOR'S STATEMENTS

4

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KEYWORDS

5

fine coal, hydration, CO₂ capture, Ca(OH)₂, Absorption

Industrial and municipal waste management

TOPICS

6

Processing and usage of mineral resources
 Recovery of valuable materials and fuels
 Smog and air pollution prevention

EXPLANATION LETTER

7

Dear Editor and Reviewers,

Thank you very much for the response to our manuscript. We have carefully revised the paper according to the reviewers' suggestions and comments. We are pleased and appreciate them. Based on the reviewers, we have changed some grammatical errors in each section that the reviewers mentioned. We thank the editor and reviewers that have been given the correction to improve our words selection. Also, We have already paraphrased the unclear statements in the manuscript based on the reviewers' suggestion. We hope that this revised version meets the editor and reviewer's request and can be published in this journal as soon as possible. Thank you very much.

Sincerely,

Muhammad Faizal

FILES

8

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Table 1. Proximate and ultimate analyses of sub-bituminous fine coal

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1. Figure 1. Composition of gas from gasification (a) before and (b) after purification.tif (28.15 kB)

Figure 1. Composition of gas from gasification: (a) before and (b) after purification



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2. Figure 2. Absorbed CO2 in syngas by Ca(OH)2 solution.tif (16.05 kB)

Figure 2. Absorbed CO2 in syngas by Ca(OH)2 solution



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3. Figure 3. Gas ratio of syngas.tif (21.1 kB)

Figure 3. Gas ratio of syngas



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4. Figure 4. HHV and LHV syngas.tif (12.34 kB)

Figure 4. HHV and LHV syngas



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9

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Authors:

Muhammad Faizal, Muhammad Said, Enggal Nurisman, Nabila Aprianti

Decision letter:

April 14, 2021

JEENG-02305-2021-01

Purification of Synthetic Gas from Fine Coal Waste Gasification as a Clean Fuel

Dear Dr. Muhammad Faizal,

I am pleased to inform you that your manuscript, entitled: Purification of Synthetic Gas from Fine Coal Waste Gasification as a Clean Fuel, might be accepted for publication in our journal, pending some minor changes suggested by reviewers (see below).

Please revise your paper strictly according to the attached Reviewers comments. Your manuscript won't be taken into consideration without the revisions made according to the recommendations.

Authors of our journal are requested to prepare a revised version of their manuscript as soon as possible. This may ensure fast publication if an article is finally accepted.

Thank you for submitting your work to us.

Kindest regards,
Prof. Gabriel Borowski
Editor-in-Chief
Journal of Ecological Engineering

Files:

[Faizal_SO.docx](#)

Authors:

Muhammad Faizal, Muhammad Said, Enggal Nurisman, Nabila Aprianti

Decision letter:

April 17, 2021

JEENG-02305-2021-02

Purification of Synthetic Gas from Fine Coal Waste Gasification as a Clean Fuel

Dear Dr. Muhammad Faizal,

I am pleased to inform you that your manuscript, entitled: Purification of Synthetic Gas from Fine Coal Waste Gasification as a Clean Fuel, has been accepted for publication in our journal.

Thank you for submitting your work to us.

Kindest regards,
Prof. Gabriel Borowski
Editor-in-Chief
Journal of Ecological Engineering



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JEE 22(5) 2021

2 pesan

Journal of Ecological Engineering <office@jeeng.net>
Kepada: muhammadfaizal@unsri.ac.id

3 Mei 2021 15.57

Dear Author,

I am sending a proof version of the article for publication in the Journal of Ecological Engineering, Vol. 22, Iss. 5, 2021.

Please read the final version of the work, and use the attached PDF files if you need to add your comments.

I am waiting for your acceptance as soon as possible.

Best Regards,

Prof. Gabriel Borowski
Editor-in Chief
Journal of Ecological Engineering
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Kepada: Journal of Ecological Engineering <office@jeeng.net>

3 Mei 2021 19.16

Dear Editor in Chief,

Thank you for the information. We totally agree with the proof version and state that there is no correction or comment we made. Thank you very much.

Sincerely,
Muhammad Faizal

[Kutipan teks disembunyikan]