

### Review Form 3

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|--------------------------|---|
| Journal Name:            | <a href="#">Journal of Materials Science Research and Reviews</a>                     |
| Manuscript Number:       | Ms_JMSRR_123935   |
| Title of the Manuscript: | Synthesis And Characterization Of Zeolite A From Aloji Kaolin Via Hydrothermal Method |
| Type of the Article      |   |

#### **General guidelines for the Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### **Important Policies Regarding Peer Review**

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#### **PART 1: Review Comments**

| <b>Compulsory</b> REVISION comments  | <b>Reviewer's comment</b> | <b>Author's Feedback</b> <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i> |
|--|---------------------------|--|
| <b>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</b>                        |                           |  |
| <b>Is the title of the article suitable? (If not please suggest an alternative title)</b>  |                           |  |
| <b>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</b>   |                           |  |
| <b>Are subsections and structure of the manuscript appropriate?</b>  |                           |  |
| <b>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</b> |                           |  |
| <b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b>   |                           |  |

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| <p>Minor REVISION comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p> |  |  |
| <p><b>Optional/General</b> comments</p>  | <p>The authors are advised to address the following comments or give a rebuttal to the following comments before it can be accepted for publication</p> <ol style="list-style-type: none"> <li>1. The study clearly aims to synthesize Zeolite A from Aloji kaolin via the hydrothermal method, with a focus on short crystallization times and high-temperature effects. However, the objective could be strengthened by providing a more specific reason for investigating these particular variables, such as their importance for improving material properties or industrial applications.</li> <li>2. The use of the hydrothermal method is appropriate for the synthesis of Zeolite A, and the selection of short crystallization times (ranging from 0.5h to 3h) at a high temperature of 115°C provides a focused scope. However, it would be helpful to briefly mention any other important processing steps (e.g., kaolin preparation, aging) that could influence the results. Additionally, while the use of high alkali concentration (5 mol/L) is noted, its impact on the synthesis process should be highlighted further—how does it contribute to achieving higher crystallinity or better-defined morphology?</li> <li>3. The key results, including the crystallinity of 78.12%, cubic morphology, surface area (18.8832 m<sup>2</sup>/g), and pore size (178.461 Å), are well presented. These findings indicate the successful synthesis of Zeolite A. However, the abstract could benefit from elaborating on how these results compare with existing literature or industrial standards, as this would provide context to the significance of the study.</li> <li>4. The abstract lacks a direct comparison with other studies or standard Zeolite A properties. Including a brief comparison would help position the study within the broader field and highlight the uniqueness of the findings. For instance, how does the crystallinity of 78.12% compare with previous reports, and does the surface area and pore size match or exceed typical Zeolite A characteristics?</li> <li>5. While the abstract mentions potential applications in "various fields," specifying these fields (e.g., catalysis, adsorption, environmental remediation) would provide a clearer understanding of the material's relevance. Additionally, summarizing the contribution of this study—such as demonstrating the feasibility of synthesizing Zeolite A from kaolin under specific conditions—would make the conclusion more impactful.</li> <li>6. The description of the hydrothermal synthesis process is well-presented. Including more details on how this method compares with other synthesis techniques in terms of efficiency, scalability, and environmental impact would add depth to the explanation.</li> </ol> <p>I recommend adding the following references to enhance the introduction, particularly in highlighting the significance of the hydrothermal method:</p> <ol style="list-style-type: none"> <li>1. Godlaveeti, Sreenivasa Kumar, Rajababu Chintaparty, Sai Kumar Arla, Mohamed A. Habila, G. Venkata Ramana, Adinarayana Reddy Somala, Mithra Geetha, Kishor Kumar Sadasivuni, and Ramamanohar Reddy Nagireddy. "Mixture Morphology of the ZnO Catalyst Synthesized by a Hydrothermal Method for an Outstanding Photocatalytic Decolourization on Organic Dyes." ECS Journal of Solid State Science and Technology 12, no. 12 (2023): 125001.</li> <li>2. Babu, C. Raja, N. Rama Manohar Reddy, and Kishore Reddy. "Synthesis and characterization of high dielectric nano zirconium oxide." Ceramics International 41, no. 9 (2015): 10675-10679.</li> <li>3. Godlaveeti, Sreenivasa Kumar, Rajababu Chintaparty, Sai Kumar Arla, Mohamed A. Habila, G. Venkata Ramana, Adinarayana Reddy Somala, Mithra Geetha, Kishor Kumar Sadasivuni, and Ramamanohar Reddy Nagireddy. "Mixture Morphology of the ZnO Catalyst Synthesized by a Hydrothermal Method for an Outstanding Photocatalytic Decolourization on Organic Dyes." ECS</li> </ol> |  |

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|  | <p>Journal of Solid State Science and Technology 12, no. 12 (2023): 125001.</p> <p>7. In introduction part Consider providing a stronger link between the environmental benefits of using kaolin-based zeolites and current global sustainability initiatives. Additionally, references to prior studies on the successful use of kaolin in zeolite synthesis could strengthen the argument.</p> <p>8. Discuss the significance of the observed diffraction peaks in relation to the formation of Zeolite A and the presence of any impurities or competing phases.</p> <p>9. Provide a more detailed description of the observed morphologies and their correlation with the crystallization conditions.</p> <p>10. Analyse the surface area, pore size, and pore volume data in the context of the potential applications of the synthesized Zeolite A. Discuss how these properties might influence its adsorption or catalytic performance.</p> |  |
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**PART 2:**

|   | <b>Reviewer's comment</b>  | <b>Author's comment</b> <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i> |
|---|--|---|
| <b>Are there ethical issues in this manuscript?</b> | <i>(If yes, Kindly please write down the ethical issues here in details)</i> |   |

**Reviewer Details:**

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| Name:                            | <b>Rajababu Chintaparty</b>           |
| Department, University & Country | <b>Annamacharya University, India</b> |