Review Form 3

Journal Name:	**Current Journal of Applied Science and Technology**
Manuscript Number:	**Ms_CJAST_126526**
Title of the Manuscript:	**Process Optimization in EV Battery Manufacturing: Reducing Waste and Improving Efficiency**
Type of the Article	**Review**

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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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
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.	**This manuscript is highly important for the scientific community as it addresses a critical issue in the transition to electric vehicles (EVs)—the management and recycling of end-of-life EV batteries. As the demand for EVs grows, the proper disposal and repurposing of batteries will become increasingly significant to mitigate environmental impact and promote sustainability. The manuscript effectively highlights innovative green technologies such as bioleaching, green solvents, and direct recycling methods, which could play a key role in advancing circular economy practices. I appreciate the thorough evaluation of current recycling techniques and emerging solutions, as well as the emphasis on process optimization to improve the environmental performance of EV manufacturing. However, the manuscript could benefit from further exploration of practical implementation challenges and economic feasibility to complement its theoretical insights.**	
Is the title of the article suitable? (If not please suggest an alternative title)	**The title of the article, "Process Optimization in EV Battery Manufacturing via Reusing of Retired Batteries," is generally suitable as it highlights the main theme of optimizing EV battery manufacturing by reusing retired batteries. However, it could be more specific in reflecting the broader scope of the article, which also covers recycling methods, green technologies, and waste management strategies for EV batteries. A more descriptive alternative title could be: "Sustainable EV Battery Management: Process Optimization, Recycling, and Green Technologies for Retired Batteries" This title captures the broader focus of the paper, encompassing reuse, recycling, and green technologies.**	

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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.	**The abstract of the article is generally comprehensive, as it provides an overview of the main themes, including the recycling and management of EV batteries, emerging green technologies, and their role in achieving carbon neutrality. However, there are some areas that could be improved for greater clarity and completeness.** **Suggestions:** **Clarity on Scope and Focus: The abstract could explicitly mention the different types of recycling methods (e.g., green leaching, bioleaching, and waste-for-waste) covered in the paper to give readers a better understanding of the specific techniques discussed.** **Mention of Case Studies: Since the paper includes case studies on EV battery management, referencing these briefly in the abstract would provide a more comprehensive snapshot of the content.** **Specific Challenges: While the abstract discusses emerging methods and technologies, it would benefit from a brief mention of the challenges involved, such as the difficulties in scaling up bioleaching for commercial use, or the need for more efficient collection systems.** **Concise Summary of Conclusion: The conclusion section of the abstract could briefly state the overall takeaway, such as the potential benefits of integrating green technologies into the recycling process to enhance sustainability and reduce environmental impact.** **Revised Example:** **"End-of-life EV batteries present significant environmental challenges. This article reviews emerging green technologies and methods, such as green leaching, bioleaching, and waste-for-waste techniques, for sustainable EV battery recycling and reuse. Case studies are analyzed to highlight the performance of these methods in real-world applications. The paper discusses key challenges in scaling these technologies, including the need for efficient collection systems and overcoming slow processing times. Ultimately, the integration of these methods into the manufacturing process can contribute to carbon neutrality, reduce waste, and optimize resource utilization in EV battery production."** **This revision would provide a clearer and more comprehensive overview of the article's content in the abstract.**	
Are subsections and structure of the manuscript appropriate?	**Yes, the subsections and overall structure of the manuscript appear appropriate for the topic being discussed**	
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.	**The manuscript demonstrates scientific correctness and technical soundness through its in-depth exploration of emerging green technologies for EV battery waste management. It accurately presents well-established and novel recycling methods, such as green leaching, bioleaching, and waste-for-waste techniques, with proper references to recent research. The technical descriptions of these processes, such as the mechanisms of bioleaching and the role of microorganisms, align with current scientific understanding, making the content credible. Additionally, the inclusion of case studies and real-world applications strengthens the scientific validity of the paper by grounding theoretical methods in practical contexts. Overall, the manuscript is scientifically robust as it presents a balanced and evidence-based analysis of the challenges and innovations in the field of EV battery recycling.**	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	**The references in the manuscript appear to be sufficient and recent, covering key studies and advancements in the field of EV battery recycling and emerging green technologies. The citations are relevant to the topics discussed, including bioleaching, green leaching treatments, and waste-for-waste recycling methods. However, the addition of a few more recent studies, particularly those from the last 1-2 years, could further strengthen the manuscript. This would ensure the article includes the latest developments in the area, particularly in the context of new technologies or innovations in the EV battery recycling industry. Additionally, some references on the economic impact of recycling methods and sustainability goals, such as reports from international environmental organizations or industry leaders, would enhance the depth of the discussion.**	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language and English quality of the article is generally suitable for scholarly communication. The manuscript is clear, structured, and effectively communicates complex technical concepts related to EV battery waste management and recycling techniques. The terminology used is appropriate for the subject matter, and the sentences are coherent and logically organized. However, there are some areas where sentence structure could be slightly improved for better clarity, and a few technical terms could be more precisely defined for a broader audience. Overall, the manuscript is well-written, but minor revisions in phrasing and grammatical consistency would further enhance its quality.	
Optional/General comments	Here are a few optional/general comments for the manuscript: Clarification of Technical Jargon: While the manuscript is written for a scientific audience, there are some areas where technical jargon could be explained a bit more, particularly for readers who might not be experts in battery recycling or green technologies. Brief explanations of key concepts like "bioleaching" or "green leaching" could be helpful in ensuring broader accessibility. Case Studies and Real-World Application: While the manuscript does a good job discussing the potential of emerging technologies, it could benefit from more detailed case studies or real-world examples of how these techniques are being implemented successfully. A discussion of specific industry partnerships or pilot programs could provide a stronger practical context for the proposed solutions. Policy and Regulation: The manuscript would be even more impactful if it included a section on existing policies or regulations governing EV battery recycling in different regions. How do these policies align with the emerging green technologies discussed? Are there specific regulatory hurdles that need to be addressed to scale up these methods? Visual Aids: The inclusion of tables, figures, or diagrams to visually represent the recycling processes, efficiency comparisons between methods, or global recycling statistics could make the article more engaging and easier to understand. Future Research Directions: While future research is briefly mentioned, it could be further elaborated upon. Specifically, outlining some key research gaps or emerging trends in battery recycling could give researchers and practitioners clearer guidance on what areas require attention. Conclusion Enhancement: The conclusion could be more impactful by summarizing the key takeaways and reiterating the broader implications of the findings. A stronger call for action or recommendations for policy-makers, industries, or future research could leave readers with a clearer understanding of the next steps in advancing EV battery recycling. These are just suggestions to further enhance an already strong manuscript. The paper addresses an important and timely topic and has great potential for contributing to the field of sustainable battery management. There do not appear to be any competing interest issues explicitly mentioned in the manuscript based on the content provided. Based on the content provided, there do not appear to be any explicit ethical issues in the manuscript	

PART 2:

	Reviewer's comment	**Author's comment** *(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)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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