

**Review Form 3**

Journal Name:	<b>Journal of Materials Science Research and Reviews</b>
Manuscript Number:	<b>Ms_JMSRR_120710</b>
Title of the Manuscript:	<b>Study on the corrosion and wear resistance of SERMETEL coatings in harsh environments</b>
Type of the Article	

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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)
<p><b>Please write few sentences regarding the importance this manuscript for scientific community. Why do you like (or dislike) this manuscript? Minimum 3-4 sentences may be required for this part.</b></p>	<ul style="list-style-type: none"> <li>- One of the modern approaches of passivating the metal surfaces is to employ the uniform coatings on the latter. The quality of the coatings always matters to the extent by which they can resist the aggressive corrosive attacks. This research article presents some valuable efforts towards the same.</li> <li>- Few more aggressive environment tests of the corrosive attacks on the adhesive coatings are mandatory to theorize the usefulness/effectiveness of the presently used Aluminium and Phosphate coatings.</li> <li>- The perspectives of the authors towards minimizing the corrosive attacks on the stainless steel surface by utilizing the stable yet enduring coatings under wide range temperature regimes are praiseworthy.</li> <li>- The experimental tests conducted by the authors to inspect the stability of the coatings and their effectiveness are scientifically relevant. However, the presentations and writing skills plus the accurate organisations of the results and discussions properly are not as expected as Journal standards.</li> </ul>	
<p><b>Is the title of the article suitable? (If not please suggest an alternative title)</b></p>	<p>Corrosion and Wear Resistance Aptitude Tests of SERMETEL Coatings under Aggressive Environments</p>	
<p><b>Is the abstract of the article comprehensive? Do you suggest addition (or deletion) of some points in this section? Please write your suggestions here.</b></p>	<p>The first few lines before ending with the full stop are very much unclear. The further splitting and rearranging of them express the meanings more realistically.</p>	
<p><b>Are subsections and structure of the manuscript appropriate?</b></p>	<p><b>Yes</b></p>	
<p><b>Please write few sentences regarding the scientific correctness of this manuscript. Why do think that this manuscript is scientifically robust and technically sound? Minimum 3-4 sentences may be required for this part.</b></p>	<p><b><u>To improvise the manuscript:</u></b></p> <ul style="list-style-type: none"> <li>- The first paragraph of the introduction section is lacking "Passivation" and "Inert" propensities of the metals. When there are the inclusions of the metallic corrosion and corrosive effects, the opposite of them must be explained side by side with logical ideologies.</li> <li>- The term "harsh environment" would be more appropriate if it is replaced by "aggressive environment", and the every explicit conditions of the aggressive scenarios that can intensify the corrosive attacks even an ambient temperature regimes must also be highlighted.</li> <li>- In the "Experimental sections 2.1 and 2.2", the sentences are not organised properly. And, some of the sentences are in imperative form rather than in standard past passive voice form.</li> <li>- In subsection 4.1, all the figures (Figure 1(a-f)) must be enlarged enough so that whatever logical interpretations are intended to carry out by the authors can be critically evaluated. The discussions presented by the authors cannot be theorized/approximated even by the careful inspections (closed look) of those figures. And, the degree of looseness/tightness and porosity/denseness of the coatings observed in Fig. 1c and 1d must be explained by reciting the particular segment of the Figures.</li> <li>- "At a certain temperature, the coating decomposed into P<sub>2</sub>O<sub>5</sub>, Al<sub>2</sub>O<sub>3</sub>, Cr<sub>2</sub>O<sub>3</sub> and MgO composite coating" does not make any sense to the EDX spectra (Figure 1(e and f)). The authors must clarify it based on the spectral interpretations if</li> </ul>	

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	<p>any. If not, the same instability of the Al- &amp; Mg- phosphate coatings can be explained on the basis of the observations stated in the subsection 4.2 (hot air testing: 600 □ dry air heating for 1000 hours or wherever relevant).</p> <ul style="list-style-type: none"> <li>- In subsection 4.3, the authors have explained the direct observations of the "Neutral salt spraying test". According to their diagrammatic illustrations, none of their attempts of applying the coatings on the metallic surface fully resist the aggressive corrosive action of the neutral salt. However, the actual reasons underlying with them such as "How do the ions (Cl<sup>-</sup>, etc.) corrode the metal? How are Cl<sup>-</sup> like ions involved in depleting the thickness of the coatings and making them peeled off?, What are the most predominant type ions to be dispersed in the sprayed neutral salt, and their actual roles to deplete the coatings?, etc. are not presented at all.</li> <li>- Nowhere the authors are found to judge the entire quality of the present adhesive coatings and their stability/instability under the aggressive corrosive conditions in reference to the pre-published literatures. And, they have not recommended these type coatings for further industrial employment in reducing/ preventing corrosive attacks. It is mandatory to underscore the novelty of the work and its futuristic applications.</li> </ul>	
<p><b>Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</b></p> <p>-</p>	The references cited throughout the manuscript are aggregable. The more critical judgement on them lies beyond the rights of the potential reviewers.	
<p><u>Minor</u> REVISION comments</p> <p><b>Is language/English quality of the article suitable for scholarly communications?</b></p>	Practically, the presentation/writing skills with satisfactory scholarly communications of this article are poor. And, many of the sentences are not following the basic grammatical rules.	
<p><u>Optional/General</u> comments</p>		

**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (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)
<p><b>Are there ethical issues in this manuscript?</b></p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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