

Dear Editor,

We would like to re-submit the attached manuscript **Coatings-1763005** entitled with “Comparison on degradation behaviors of Ti6Al4V alloy in simulated environments”. We greatly appreciate your time and efforts as well as the reviewers’ comments on our manuscript. We have modified the manuscript carefully according to the suggestions from you and reviewers. The point-to-point responses to the comments of the referees are listed in the separate response letter. All the changes have been highlighted in green in the revised manuscript.

In all, we have tried our best to improve the manuscript. We hope this revised manuscript could meet the requirements for publication in “**Coatings**”. Thank you for your consideration.

We are looking forward to your reply in your earlier convenience.
Yours sincerely,

Comments: The last paragraph for Introduction must be improved in order to outline what is new and innovative in this work.

Response: We sincerely thank the reviewer for these constructive suggestions on our paper. This study focuses on the differences in corrosion damage of Ti6Al4V in different simulated environments and the detailed degradation mechanism. The relevant content has been modified in the paper.

Comments: The weight percentage composition of each element in the alloy should be clarified.

Response: We sincerely thank the reviewer for these constructive suggestions on our paper. We have added the elemental content of the Ti6Al4V alloy to the paper.

Comments: Explain in more details the mechanism of degradation reactions during the hot salt - water vapour exposure.

Response: We sincerely thank the reviewer for these constructive suggestions on our paper. We have added the corrosion mechanism for the hot salt-water vapour test in the paper.

Comments: There is any evidence of bulk degradation during the experiments?

Response: We sincerely thank the reviewer for these constructive suggestions on our paper. The deionised water underwent a significant colour change over time during the cleaning of the samples, which combined with reports in the relevant literature, indicates the presence of partial generation and degradation of corrosion products.

Comments: What about the stability of Ti₂O product?

Response: We sincerely thank the reviewer for these constructive suggestions on our paper. The results of the XPS analysis of sample H1 showed that the Ti element on the surface of sample H1 was +4 valence, indicating that the main component of the passivation film was TiO₂. The results of the analysis are described in detail in the paper.

Comments: Provide the XPS measurements to have a better evaluation of the products.

Response: We sincerely thank the reviewer for these constructive suggestions on our paper. We have performed XPS analysis of samples H1 and H3 and have correlated the results in the paper.