Reply to Editor and Reviewer

Dear editor and reviewer

Coatings

We are very pleased to hear from you. We carefully revised the manuscript based on the comments of editors and reviewers. The manuscript was revised in response to each point. All major changes are shown in blue in the revised paper.

Response to associate editor:
First of all, I am very grateful to associate editor for your valuable comments. The answers are as follows:

Response to Reviewer 1
We are very grateful to reviewer 1 for his hard review and value comments on our papers. Reply to those comments as follows:

- far too few cited bibliographic references, especially in such a well-studied field
Reply: Thank you for your comments. We have added some new references according to your suggestions, please see the revised manuscript.

- in figure 1a it is different from 1b, c, d (the abscissa axis differs, the legend differs), it does not appear on the figure which is b, c or d
Reply: Thank you for your comments. It was revised in the revised manuscript.

- corrosion analysis (Electrochemical parameters and Evans curves) should have been done at at least 3 temperatures, not only at 60 degrees Celsius
Reply: Thank you for your comments. We carry out accelerated corrosion experiments in the laboratory and set the temperature to 60 degrees to obtain better accelerated corrosion results. Therefore, we only selected this temperature in a corrosive environment, which can carry out the experimental research better, and did not select other temperatures for further experimental research.

- in figure 4, at the SEM analysis, it should have been indicated where the crystallographic structures identified in figure 5 appear
Reply: Thank you for your comments. We first performed SEM analysis on the sample, and then performed XRD analysis on the sample. Because there are two kinds of testing instruments, it is difficult to determine the XRD analysis position in the SEM with our instrument. It is confirmed that EDS analysis is feasible in SEM.

- usually, for maintenance engineers, it is important that the corrosion rate (corrosion wieght loss rate) be expressed in mm / year so that it can be more easily quantified.
Reply: Thank you for your good suggestions. Corrosion weight loss rate is also a standard method to express the degree of corrosion. We study corrosion in the future, and we will use mm / year to express it.

Unfortunately, the authors have limited themselves to analyzing 4 materials whose behavior in corrosion in environments such as that specified in the article is already known. It is normal for carbon steel to have a much higher corrosion rate than Zn-Al coating or copper.

Reply: We have carried out researches on the corrosion resistance of a variety of grounding materials in the red soil environment, and selected four typical grounding materials for research. Carbon steel has low cost and is used in some low-demand environments. Galvanized steel, zinc-aluminum steel, and copper have high costs and are used in areas with high environmental requirements. Carry out their corrosion resistance research to provide reference for use in different environments.