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Journal Name:	**Journal of Materials Science Research and Reviews**
Manuscript Number:	**Ms_JMSRR_131305**
Title of the Manuscript:	**Investigation of the Influence of Two Different Surfactants on the Frictional Properties of Micro-Arc Oxidation Coatings on Titanium Alloys**
Type of the Article	**Minireview Article**

PART 1: Comments

	Reviewer's comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.**	**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. A minimum of 3-4 sentences may be required for this part.	Surface hardening of metal products is an important technological process that allows to significantly improve and modify their performance (corrosion resistance, fatigue strength, wear resistance, etc.). The paper studies the methods for improving coatings obtained by the Micro-Arc Oxidation method on one of the most widely used in modern industry titanium alloys TC4. Plasma electrolytic oxidation (PEO), also known as electrolytic plasma oxidation (EPO) or microarc oxidation (MAO) is a further development of the electrolyte quenching method widely used in industry for surface hardening. The essence of the MAO method is based on the fact that when current pulses are passed through the electrolyte, a thin layer (gas shell) of tiny hydrogen bubbles is formed on the cathode (workpiece). Due to the poor electrical conductivity of hydrogen bubbles, the current increases greatly and the surface of the cathode (workpiece) heats up to a high temperature. After the current pulse stops, the surface is hardened in the same electrolyte and a coating is formed on its surface, which is a product of the chemical reaction of the hot surface of the cathode metal and the substances included in the electrolyte. The problems of improving the quality of the resulting coating, developing technological modes for obtaining coatings with specified properties (for example, the required hardness or specified tribological properties) are important and urgent problems of modern materials science. Undoubtedly, the results presented in the peer-reviewed study will be of interest to a wide range of specialized specialists.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	In general, the title of the article reflects the essence of the study. However: 1. The work studied the properties of the coating of one titanium alloy TC4, so using the broader wording "Titanium Alloys" in the title is not entirely correct; 2. In my opinion, it would be appropriate to indicate in the title of the article the effect of which Surfactants on the surface properties was studied and not to emphasize the difference of Surfactants (since the work does not discuss in any way the differences between these Surfactants and why these substances were chosen for the study). 3. The presented work contains significant volumes of high-quality studies of the hardness, morphology and structure of the obtained coatings, however, this fact is not reflected in the title 4. A significant feature and novelty of the presented study was the study of a coating modified with Cu nanoparticles, however, this fact is not reflected in the title Therefore, in my opinion, a more successful title would be: **Influence of surfactants (AES and SDBS) on the hardness, morphology, structure and tribological properties of modified by Cu nano particles Micro-Arc Oxidation Coating of titanium alloy TC4**	

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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 comprehensive.	
Is the manuscript scientifically, correct? Please write here.	The manuscript is scientifically correct. It was carried out at a high scientific and experimental level.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The references are sufficient and recent.	
Is the language/English quality of the article suitable for scholarly communications?	Yes, the language/English quality of the article is suitable for scholarly communications.	
Optional/General comments	**1.** Fig. 1-4, 6 and Table 1 show the results for coatings obtained using two different Surfactants. In my opinion, it would be appropriate to also provide data for the coating obtained without using Surfactants (or provide the relevant literature references). Since without this, we can only talk about the advantage of one Surfactant over another, but we cannot judge how much the quality of the coating has improved compared to what could have been obtained without using Surfactants. **2.** In Fig. 5, the caption for the gray dependence is not in English. Probably, these are the bottom data for the coating obtained without using Surfactants. This needs to be corrected. **3.** In Fig. 6, three photographs are shown for each of the two studied Surfactants. However, neither the caption to this figure nor the text of the article indicates how they differ. Probably, this is the testing time, but the reader should not guess about this, it needs to be indicated. **4.** The paper shows that the introduction of copper nanoparticles into the electrolyte subsequently leads to the introduction of these particles into the structure of the resulting coating. However, the paper does not contain data on the properties of the coating that could be obtained using a similar processing mode, but without introducing copper nanoparticles into the electrolyte. It would be advisable to provide this data or give the relevant literature references. **5.** Everywhere in the text of the article, the coating obtained using copper nanoparticles is discussed, but in the last sentence of section 1.2 it is written "Nano-ni particles (diameter about 200 nm) were added ...". This is the only place in the paper where nickel nanoparticles are mentioned and this is probably a mistake. **6.** The introduction should have discussed why copper nanoparticles were chosen as nanoparticles improving the quality of the coating and what is the advantage of this choice compared to other materials traditionally used to improve the tribological characteristics of the coating (for example, MoS_2). **7.** In my opinion, the work should also discuss the physical reasons leading to improved coating quality as a result of using Surfactants.	

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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)*	

Reviewer Details:

Name:	**Yuri Semerenko**
Department, University & Country	**B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, Ukraine**