



an Open Access Journal by MDPI

Plasma Electrolytic Oxidation

Guest Editor:

Prof. Dr. Tadeusz Hryniewicz

Division of BioEngineering and Surface Electrochemistry, Department of Engineering and Informatics Systems, Faculty of Mechanical Engineering, Koszalin University of Technology, 75-620 Koszalin, Poland

Deadline for manuscript submissions: closed (30 April 2018)

Message from the Guest Editor

Dear Colleagues,

Plasma Electrolytic Oxidation (PEO), also known as Micro Arc Oxidation, is used to obtain porous coatings on metals such as aluminum, magnesium, titanium, tantalum, niobium, and their alloys. The first works on electrolyte discharge phenomena are dated as early as 1880, and the practical use of oxidation of aluminum by PEO started in 1970. These two dates should be recognized as the beginning of the Plasma Electrolytic Oxidation age. Afterwards, that technology was patented and introduced to industrial applications in the 1980s. Most important is that PEO coatings formed on metals and alloys may be enriched using selected elements, originating from the electrolytes used. The chemical and phase compositions, as well as porosity and the thickness of the PEO coating depend on the values of the DC and AC voltages used for that treatment. The expected applications of PEO coatings can be found in aerospace and space industries, as well as in the production of biomaterials and automotive catalytic converters. Investigations into PEO processing and the physical-chemical and mechanical properties of these porous coatings are the objective of this Special Is









an Open Access Journal by MDPI

Editors-in-Chief

Prof. Dr. Hugo F. Lopez

Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

Prof. Dr. Yong Zhang

Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure - disciplines in metallurgical field the ranging from processing. mechanical behavior. phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions. **High Visibility:** indexed within Scopus, SCIE (Web of Science), Inspec, CAPlus / SciFinder, and other databases. **Journal Rank:** JCR - Q2 (*Metallurgy & Metallurgical Engineering*) / CiteScore - Q1 (*Metals and Alloys*)

Contact Us

Metals Editorial Office MDPI, St. Alban-Anlage 66 4052 Basel, Switzerland Tel: +41 61 683 77 34 www.mdpi.com mdpi.com/journal/metals metals@mdpi.com X@Metals_MDPI