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3 PT J
4 AU Lu, XP
5 Chen, Y
6 Blawert, C
7 Li, Y
8 Zhang, T
9 Wang, FH
10 Kainer, KU
11 Zheludkevich, M
12 AF Lu, Xiaopeng
13 Chen, Yan
14 Blawert, Carsten
15 Li, Yan
16 Zhang, Tao
17 Wang, Fuhui
18 Kainer, Karl Ulrich
19 Zheludkevich, Mikhail
20 TI Influence of SiO2 Particles on the Corrosion and Wear
21 Resistance of Plasma Electrolytic Oxidation-Coated AM50 Mg Alloy
22 SO COATINGS
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30 PARAMETERS
AB The influence of SiO2 particles on the microstructure, phase
composition, corrosion and wear performance of plasma electrolytic
oxidation (PEO) coatings on AM50 Mg was investigated. Different
treatment durations were applied to fabricate coatings in an
alkaline, phosphate-based electrolyte (1 g/L KOH + 20 g/L Na3PO4 +
5 g/L SiO2), aiming to control the incorporated amount of SiO2
particles in the layer. It was found that the uptake of particles
was accompanied by the coating growth at the initial stage, while
the particle content remained unchanged at the final stage, which
is dissimilar to the evolution of the coating thickness. The
incorporation mode of the particles and phase composition of the
layer was not affected by the treatment duration under the voltage
-control regime. The corrosion performance of the coating mainly
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depends on the barrier property of the inner layer, while wear resistance primarily relies on the coating thickness.

31 C1 [Lu, Xiaopeng; Chen, Yan; Li, Yan; Zhang, Tao; Wang, Fuhui]
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35 C3 Northeastern University - China; Northeastern University - China;
36 Helmholtz Association; Helmholtz-Zentrum Geesthacht - Zentrum fur
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38 RP Lu, XP; Chen, Y (corresponding author), Northeastern Univ, Corros & Protect Div, Shenyang Natl Lab Mat Sci, Shenyang 110819, Liaoning, Peoples R China.; Lu, XP; Chen, Y (corresponding author), Northeastern Univ, Key Lab Anisotropy & Texture Mat, Educ Minist China, Shenyang 110004, Liaoning, Peoples R China.; Lu, XP (corresponding author), Helmholtz Zentrum Geesthacht, Magnesium Innovat Ctr MagIC, Max Planck Str 1, D-21502 Geesthacht, Germany.

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43 RI Blawert, Carsten/I-3833-2013; Li, Yan/JCE-3047-2023; Zheludkevich, Mikhail/E-2102-2017; Kainer, Karl Ulrich/AAI-5962-2021

45 OI Zheludkevich, Mikhail/0000-0002-9658-9619; Kainer, Karl Ulrich/0000-0002-9630-0985; Li, Yan/0009-0001-4463-203X

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