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## Plasma electrolytic oxidation coatings with particle additions – A review

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### Abstract

Plasma electrolytic oxidation (PEO) processing for light metals is known for decades and has been established as a well-known industrial surface treatment offering a reasonable wear and corrosion protection. However, long-term protection is compromised by the intrinsic porosity and limited range of composition in the PEO layer. A novel approach is to introduce particles to the electrolyte, aiming at their in-situ incorporation into PEO coatings during growth. The idea is that with the help of particles the defects can be sealed, and the composition range and the functionalities of produced coatings can be enhanced. So far, multifunctional coatings with anticorrosion, self-lubrication, anti-wear, bioactive and photocatalytic properties were produced with the aid of particle addition.

The properties of particle itself, together with electrical and electrolyte parameters during PEO processing determine the way and efficiency of particle uptake and incorporation into the

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