# Article information:

喷丸强化对PEO涂层AZ31镁合金腐蚀性能的影响：与传统表面预处理的比较 - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S0257897222006946>

# Article summary:

1. Magnesium and its alloys have low corrosion resistance, which limits their use in various disciplines such as automotive, aerospace, marine and biomedical.

2. Surface treatments such as PVD, fluorides coatings, organic coatings and plasma electrolytic oxidation (PEO) can be used to modify the surface properties of magnesium alloys to improve their corrosion resistance.

3. Shot peening (SP) is a potential surface pre-treatment that can be used to increase the mechanical properties of magnesium alloys, but it has been found to have a negative effect on corrosion resistance due to increased surface reactivity.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article provides an overview of the effects of shot peening (SP) on the corrosion resistance of PEO-coated AZ31 magnesium alloy. The authors provide evidence from previous studies that SP can improve mechanical properties but reduce corrosion resistance due to increased surface reactivity. The article is generally well written and provides a comprehensive overview of the topic with references to relevant literature.

However, there are some potential biases in the article that should be noted. Firstly, the authors do not explore any counterarguments or alternative perspectives on SP as a pre-treatment for PEO coating on AZ31 magnesium alloy. Secondly, there is no discussion of possible risks associated with SP pre-treatment such as increased wear or fatigue failure due to compressive residual stresses induced by SP treatment. Thirdly, there is no mention of other potential pre-treatments for PEO coating such as chemical etching or polishing which could potentially provide better corrosion protection than SP pre-treatment. Finally, there is no discussion of how different parameters such as particle size or energy level affect the performance of SP pre-treatment on AZ31 magnesium alloy.

In conclusion, while this article provides an informative overview of the effects of shot peening (SP) on PEO coated AZ31 magnesium alloy in terms of corrosion resistance, it does not explore alternative perspectives or discuss potential risks associated with this pre-treatment method nor does it consider other potential pre-treatments for PEO coating which could potentially provide better corrosion protection than SP pre-treatment.

# Topics for further research:

* Alternative pre-treatments for PEO coating
* Chemical etching pre-treatment for PEO coating
* Polishing pre-treatment for PEO coating
* Risks associated with shot peening pre-treatment
* Compressive residual stresses induced by shot peening
* Effects of particle size and energy level on shot peening pre-treatment

# Report location:

<https://www.fullpicture.app/item/6ec328c469269c952d17ce1122cb75cb>