

2. When the CD is 7 A/dm<sup>2</sup>, electrochemical experiments showed that the E<sub>corr</sub> of the coating reaches a maximum value (-0.563 V) and the i<sub>corr</sub> reaches a minimum value (8.01 × 10<sup>-10</sup> A·cm<sup>-2</sup>) compared to the other samples, indicating that the corrosion resistance of that coating is the best.

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## References

- 1 W.J. Qi, et al., "Study on Electrochemical Corrosion of 7050 Aluminum Alloy," *MP* 56 (2017): pp. 58-61.
- 2 H.B. Chen, B. Yang, "Effect of Heat Treatment on Micro-Structures and Mechanical Properties of a Bulk Nanostructured Al-Zn-Mg-Cu Alloy," *Int. J. of Minerals, Metallurgy and Materials* 16, 6 (2009): pp. 672-676.
- 3 N.J.H. Holoroyd, G.M. Scamans, "Stress Corrosion Cracking in Al-Zn-Mg-Cu Aluminum Alloys in Saline Environments," *Metallurgical and Materials Transactions A* 44, 3 (2012): pp. 1,230-1,253.
- 4 X.Y. Zhang, et al., "Effects of Applied Potential on the Stress Corrosion Cracking Behavior of 7003 Aluminum Alloy in Acid and Alkaline Chloride Solutions," *Int. J. of Minerals, Metallurgy and Materials* 23 (2016): pp. 819-826.
- 5 X. Qi, et al., "A Study on the Susceptibility to SCC of 7050 Aluminum Alloy by DCB Specimens," *Materials* 9, 11 (2016): p. 884.
- 6 R.G. Song, et al., "Stress Corrosion Cracking and Hydrogen Embrittlement of an Al-Zn-Mg-Cu Alloy," *Acta Materialia* 52, 16 (2004): pp. 4,727-4,743.
- 7 K.S. Ghosh, et al., "Study of Aging and Electrochemical Behaviour of Al-Li-Cu-Mg Alloys," *Mater. Corros.* 64, 10 (2013): pp. 890-901.
- 8 X.W. Yu, C.N. Cao, "Electrochemical Study of the Corrosion Behavior of Ce Sealing of Anodized 2024 Aluminum Alloy," *Thin Solid Films* 423, 2 (2003): pp. 252-256.
- 9 D.F. Wu, Y.Y. Lei, X.Y. Zhang, "Effect of Nano-SiO<sub>2</sub> Additive on the Microstructure and Wear Resistance of Micro-Arc Oxidation Ceramic Coating on Casting Aluminum Alloy," *Surf. Technol.* 42 (2013): pp. 42-44.
- 10 A. Seyfoori, et al., "Biodegradation Behavior of Micro-Arc Oxidized AZ31 Magnesium Alloys Formed in Two Different Electrolytes," *Applied Surface Science* 261, 15 (2012): pp. 92-100.
- 11 C.B. Zheng, et al., "Electrochemical Investigation on the Hydrogen Permeation Behavior of 7075-T6 Al Alloy and its Influence on Stress Corrosion Cracking," *Int. J. of Minerals, Metallurgy and Materials* 22 (2015): pp. 729-737.
- 12 T. Hou, J.Z. Zhang, "Porous Films on Surface of Titanium Prepared by Low Voltage Micro Arc Oxidation," *Surface Engineering* 23, 3 (2007): pp. 169-172.
- 13 L.C. Zhao, et al., "Growth Characteristics and Corrosion Resistance of Micro-Arc Oxidation Coating on Pure Magnesium for Biomedical Applications," *Corros. Sci.* 52, 7 (2010): pp. 2,228-2,234.
- 14 E. Zumelzu, et al., "Characterisation of Nanometric Chromium Coatings in Metal-Polymer Composites," *Surface Engineering* 29 (2013): pp. 620-626.

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