Short Communication

Aggregation of MAO Coatings and Crack Formation in the Microgrooves on an Aluminum Surface

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Surface microgroove pretreatment has been proven to be an effective method to increase the formation efficiency and performance of microarc oxidation (MAO) coatings. Here, the effect of the microgroove dimensions on an MAO coating was investigated systematically. The results indicate that as the opening angles of the microgrooves decrease, the coating aggregation increases and the defects become very obvious. Conversely, microgrooves that are too large lose their effect on the coating. Moreover, the MAO coatings in the central region of the microgrooves are mainly composed of a nodular structure contrasting to the volcanic structure of the planar regions.

Keywords: Micro-arc oxidation; Microgrooves; Microstructure; Defects.

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