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Abstract

Service performance and safety of aluminum materials are restricted by the proneness to marine corrosion. The facile and low cost fabrication of fluorine-free superhydrophobic aluminum surfaces for anticorrosion is still a challenging issue. Herein, we report a handy and versatile fabrication of nonfluorinated *Allium giganteum*-like superhydrophobic aluminum surfaces *via* one step electrodeposition approach. The surface topographies, wettability and chemical compositions were detailed characterized and discussed. In addition, we investigated the self-cleaning