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Field testing of titanium dioxide coatings on metal surfaces to prevent biofouling in tropical climates

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In a tropical climate, field tests of a thin-layer photocatalytic coating made of titanium dioxide on metal surfaces to protect against biofouling were carried out. A layer of titanium dioxide in the crystalline form of anatase with a thickness of 300 nm was applied to samples of stainless steel grade 12X18H10T with dimensions of 50x50x1 mm using magnetron sputtering. After exposure for 6 months on the open site of the climate test station in the vicinity of Ho Chi Minh City in Vietnam, control samples without a protective coating are overgrown with mycelium fungi, however, biofouling was not detected on samples with a layer of titanium dioxide.

Keywords: titanium dioxide, anatase, microorganisms, bacteria, mold fungi, protection of metal surfaces, biocorrosion, biofouling.

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