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THE TRANSPASSIVATION OF PURE TI IN ARTIFICIAL SEAWATER

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Ti and its alloys have been widely used in aerospace, and biomedicine, petrochemical industries because of their excellent passivity. In this paper, the passivation and transpassivation behavior of pure Ti in artificial seawater was investigated by means of volta potential, cyclic voltammetry, spectroscopic ellipsometery, Mott-Schottky analyses, SEM and XPS. The results indicated that the passive Ti surface can transform to a relatively active state around at roughly 1.4 V_{SCE} and then became passive again at more positive potentials up to 3.2 V_{SCE}. Based on these experimental results, a model was proposed to interpret the transpassivaton behavior around that potential.

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