

## Abstract

The aim of this work is to study the electrochemical behavior of metals most often encountered in marine environment, simulating biofilm effect on stainless steels and titanium in natural seawater. The number of electrons exchanged per molecule of oxygen consumed by biofilm formed on steel is in range of two ( $n = 2$ ) at -1.0 V/SCE while that of titanium is around six ( $n = 6$ ) measured at -1.5 V/SCE. Immersion time effect of steel in seawater showed a significant variation of corrosion potential that goes from cathode to anode zone area. For short stay titanium in natural seawater, corrosion potential varies around -250 mV/SCE and then reached under cathodic values to longer stay