

Free chlorine electrochemical production for prevention of marine biofouling

송건영, 강성철, 최옥경, 상병인[†]

한양대학교

(biosang@gmail.com[†])

Most power plants are near the coast because of cooling heat using sea water. However, there are various kinds of living organisms in sea water. They occur biofouling and contamination in power plant piping. In the past, in order to prevent biofouling, it has been used a physical removal method such as a scraper, brush and chemical removal method to spray chlorine gas into the water. But they have limitations to prevent biofouling completely. Before experiment, *Balanus Amphitrite albicostatus* (Barnacles) was collected from intertidal rocks to rear the larvae from hatching through nauplius stages and a cyprid in a laboratory. Next, only the larvae moved to other tanks each with or without electrode. The purpose of this article is to install electrode plates on both sides of the seawater inlet and apply a voltage to block the habitat of marine organisms by generating free chlorine in the seawater. Ruthenium was used as anode and Titanium as Cathode. Then, evaluate the degree of adhesion of barnacle larvae according to the production of free chlorine and voltage and current at that time. This study can be applied to wastewater treatment or decontamination.