

Analysis of Sea Water Electrolysis in Closed Tank System

Wei Tao, ¹, ¹, ^{*}
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(leech@yonsei.ac.kr^{*})

Ballast water carried by the ship to ensure stability contains various kinds of creature such as microorganisms, phytoplankton, zooplankton, etc. Species invasion may take place when ballast water is discharged to a new circumstance without treatment. As a safe and efficient way to deal with the issue, electrochemical method has drawn more and more researchers' attention.

A closed tank system was designed for sea water electrolysis, which is loaded a latticed anticorrosive electrode and equipped with temperature and pressure transmitter connected with sensor monitor, and data was recorded in real time. By altering the salinity and electric current, the volume of ballast water treated and electrolysis period, the effects of these conditions on ballast water were observed in terms of temperature and pressure. In addition, the composition change in gas phase was analyzed by Gas Chromatography. And the liquid and precipitated solid were analyzed by ICP-OES.