BIOX

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On-line Electrochemical system for biofouling and chlorination monitoring

- Real time indication of biofouling growth
- Real time indication of effective oxidant concentration
- Optimisation of biocide consumption

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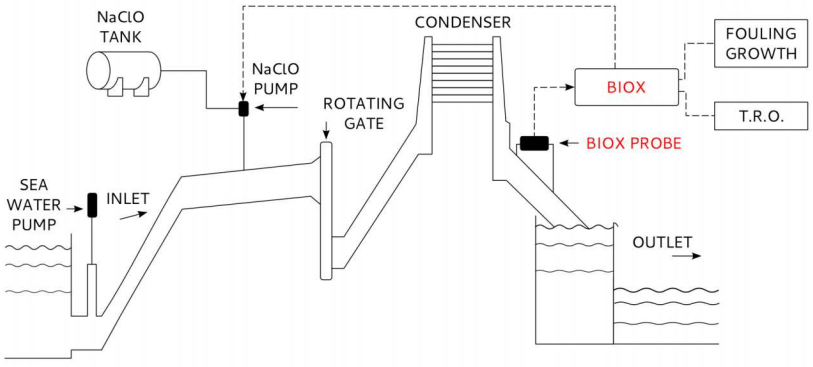
The problem

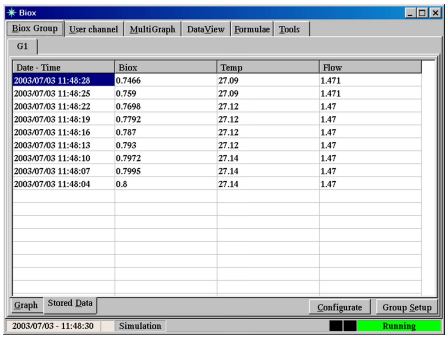
- Biofilm of organic and inorganic substances and microorganisms which covers the surface wetted by sea water, constitutes the first stage of the biofouling growth and acts as a growth substratum for macrofouling.
- Biofilm causes remarkable changes in the physico-chemical characteristics of the surfaces of passivable metals, affects their resistance to corrosion and is responsible for the decrease of efficiency of cooling circuits and heat exchangers.
- Chlorination is a widely used chemical treatment to avoid growth of biofouling, nevertheless the lack of an efficient control of sea water chlorine concentration can be the cause of the ineffectiveness of the biocide treatments.

What is Biox System

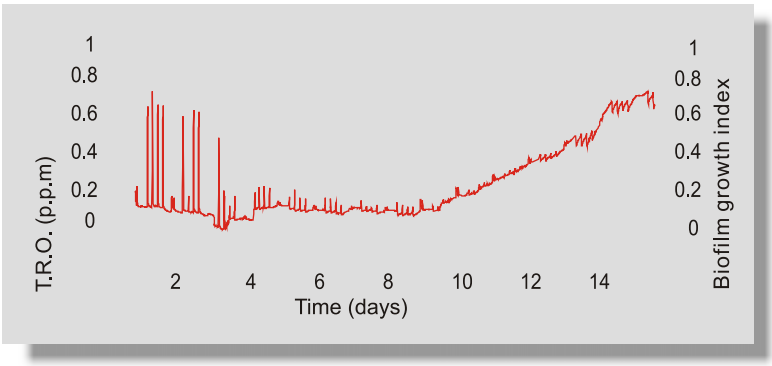
- BIOX is an innovative system for the on-line electrochemical monitoring of biofilm growth and concentration of effective T.R.O. (total residual oxidant) diffusing toward the sensor.
- During biocide treatments it allows the control and optimization of both dosage time and concentration of oxidants.
- The system utilizes special electrochemical probes inserted into the water cooling circuit and processes the data, together with other physical parameters, to evaluate the changes of kinetics of the electrochemical processes induced by bacteria settlement on metal surfaces.



Biofilm and T.R.O. monitoring



Biofilm growth index and T.R.O. can be graphically read on Biox color screen.



Peaks in the figure correspond to the chlorination treatments. The slow slope of graph corresponds to the growth of biofilm resulting from a decreased T.R.O. concentration.

BIOX Main features

- Graphic display of Biofilm growth index and concentration of the oxidant used for biocide treatment.
- Multisensors capability
- Data logging capacity up to 12 months of fouling, temperature and water flow
- All stored data can be examined on lineor exported to other programs.
- Measure of temperature and water flow
- Programmable alarm thresholds
- Programmable output lines.
- On site data evaluation on the whole observed period
- Remote control through Ethernet connection

Sensors group: Biox electrochemical probes
Temperature sensor
Water flow sensor

1" Biox Electrochemical probe.

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