

Abstract

Water is used in thermal power plants, for cooling purpose such as fin-fan, condensate *etc.*, all over the world. Water is a host environment to corrode metals. Therefore machinery parts made of metal are potent to corrode in water medium. In order to prevent the corroding of machinery parts, corrosion inhibitors are used. Traditionally, carboxylates, phosphates and chromates *etc.* are used as corrosion inhibitors.

In Sri Lanka, nitrite based corrosion inhibitors are used to prevent corrosion, at all thermal power plants owned by the Ceylon Electricity Board, which is the government body producing major portion of thermal electric power, but no proper study has been done to evaluate the effectiveness a chemical of this type as a corrosion inhibitor. This research project was aimed to study the effectiveness of nitrite based corrosion inhibitor.

Corrosion level was monitored by determining iron(III) content in cooling water by varying the content of nitrite based corrosion inhibitor. Concurrently, nitrite content in cooling water associated with corrosion inhibitor was measured in a closed system as well as in an open system. The effective nitrite content of a closed cooling system was found to be $\geq 350 \text{ mg dm}^{-3}$.