



Evaluation of NH_4^+ and PO_4^{3-} Removal in Treatment of an Industrial Wastewater Containing Chlorophenolic Contaminants with Ozonation

Amir Hajjali

Postdoctoral Fellow at Yerevan State University
(Department of Ecological Chemistry), Yerevan, **ARMENIA**

Email: a.hajjali.env@gmail.com

Accepted on 6th September 2017, Published online on 27th September 2017

ABSTRACT

In this research, treatment of an industrial wastewater was experimented in order to remove the value of NH_4^+ and PO_4^{3-} in two different methods. Such wastewaters contain specific poisonous chlorinated phenolic combinations, which in biological reactors in a liquid phase could be absorbed much easier and with a higher velocity. After the treatment, the concentrations of NH_4^+ and PO_4^{3-} were measured in the cyclic ozonation-biotreatment system and were compared with the same parameters` achieved measures in effluent from anaerobic bioreactor. The comparison revealed that the removal in both was dramatically different and proved the remarkable efficiency of the cyclic ozonation-biotreatment system. By bio-ozone-bio treatment the value of consumed ozone was considerably increased, but through this way the quality of treatment and the value of dissolvable substances and returnable to the environment were increased. In cyclic ozonation-biotreatment reactor liquids are passed sequentially and according to bio-ozone-bio-treatment method, and it showed when ozone is consumed very quickly, no ozone can enter the reactor actually. Experiments showed that the ozone value never reached the ozone value in the new comer wastewater to the system when wastewater of system was consumed again. It means that if new wastewater is entered, the ozone value is more than the previous one in the system.

Keywords: Chlorophenolic Contaminants, NH_4^+ , Ozonation, PO_4^{3-} , Wastewater Treatment.
