

## A STUDY ON PREPARATION AND TESTING OF SOME FERRIC SALTS FOR WATER COAGULATION

**J. O. Jeje**<sup>\*1</sup>

<sup>1</sup> Department of Civil Engineering,  
Obafemi Awolowo University, Ile –  
Ife, **NIGERIA**

Corresponding Author:  
jemails2000@yahoo.co.uk

**O. R. Alo**<sup>1</sup>

<sup>1</sup> Department of Civil  
Engineering, Obafemi  
Awolowo University, Ile – Ife.  
**NIGERIA**

Alo\_seun@yahoo.com

**O. O. Fadipe**<sup>2</sup>

<sup>2</sup>Department of Civil  
Engineering, Osun State  
University, Osogbo  
**NIGERIA**

olayemifadipe@yahoo.com

### ABSTRACT

In view of the increasing price of alum, efforts are being made towards local production of a suitable coagulant that could potentially compete with alum in terms of effectiveness and economy. To this end, four ferric salts namely; Ferrosol, Ferrichlor, Ferrifloc and Ferriclear were prepared and tested for coagulation effectiveness. The two salts that were most successful were analysed for cost effectiveness. The salts were prepared by investigating the electrolysis of dilute sulphuric acid. While Ferrosol and Ferrichlor had relatively low performance, Ferrifloc and Ferriclear were found to be almost as effective as alum at water pH 7.5 and 9 and more effective than alum at water pH 10 and 11 causing about 90% turbidity removal dosages of about 50 to 60 mg/l. Furthermore, Ferrifloc and Ferriclear do not depress the pH of water as much as alum. Ferrifloc was found to be superior to Ferriclear in terms of cost effectiveness. Production of Ferrifloc on a larger scale has been recommended towards making it have a significant potential for commercial exploitation.

**Keywords:** Ferric salts, coagulation, alum, cost effectiveness, turbidity and coagulant.