

## CHAPTER 5



## CONCLUSIONS

On the basis of the experimental results obtained, the following conclusions are for the study of reduction of trihalomethanes formation potential in reclaimed water from treated industrial estate wastewater.

1. Turbidity could be effectively removed to the level of as low as about 3 NTU by coagulation at the alum and ferric chloride dosages of approximately 10 mg/L without controlled pH
2. Concerning the correlations between THMFP and other surrogates for NOM such as TOC, DOC, UV-254, and SUVA, the best correlation was TOC and THMFP with a Pearson Correlation factor of 0.931 ( $R^2 = 0.866$ ). The equation could be used to express the correlation between THMFP and TOC was  $THMFP = 238.552 + 33.886 TOC$ .
3. In nearly all cases at the controlled pH between 5.5 and 6.5, TOC were gradually reduced from the range of 5.1 and 6.3 mg/L (average value of 6.12 mg/L) to the level of almost constancy of approximately 4.0 mg/L at the alum and ferric chloride dosages of about 40 mg/L. However, the maximum TOC reduction was appeared by using ferric chloride dosage of more or less 80 mg/L at pH 5.
4. Chloroform of approximately 65 and 60 percent of total THMFP were found as the predominant THMFP species in treated industrial estate wastewater and in reclaimed water, respectively in comparison with dichlorobromoform, dibromochloroform and bromoform species. Likewise, chloroform removal efficiency by alum coagulation of 40.82 percent was also observed while other species could not be efficiently reduced. However, it can be presented that total THMFP of 25.23 percent could be removed by coagulation of alum dosage of about 80 mg/L at pH 5.5. With respect to coagulation by ferric chloride, chloroform, dichlorobromoform, dibromochloroform and bromoform removal

20.45 percent, respectively, as a result, total THMFP removal of 27.71 percent was reckoned.

5. THMFP and surrogates for NOMs in treated industrial estate wastewater could be reduced satisfactorily by the coagulation process of using alum dosage of about 80 mg/L at pH 5.5 and also using ferric chloride of approximately 80 mg/L at pH 5.