CHAPTER V

CONCLUSION AND SUGGESTION

5.1 Conclusion

It was found that temperature and amount of acetaldehyde have direct effect on the yellow oil formation. Character of yellow oil product was light yellow color at first. The color changes to orange and then to red as solid polymer grows. A deep red liquid is produced. The aldol condensation of acetaldehyde, which is believed to be the cause of the fouling, can be used as indicator for the fouling formation in caustic tower.

For inhibitors, hydrazine and hydroxylamine hydrochloride were found to be effective in inhibiting the reaction of aldol condensation by formation of oxime.

5.2 Suggestion for further study

To study the yellow oil formation in ethylene plant further, one should study the effect of other aldehydes in forming yellow oil and the reaction of polymer that occur including other side reactions. Method for easy identification of the various polymers should also be developed.

For inhibitors that can be used in the ethylene plant, one must consider the specification of ethylene product which control nitrogen compound to less than 1 ppm. The chemical treatment can be used in the ethylene plant by

feeding inhibitor with the fresh caustic into the caustic tower. However type of chemical treatment should be tried out with pilot plant first.