

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Due to the environmental issues in EDTA, the study of biodegradable chelating agents (GLDA and EDDS) as a replacement was carried out in compared with EDTA for soap scum dissolution. Since solution pH affected the equilibrium solubility of both calcium and magnesium soap scum, the highest equilibrium solubility was found in calcium soap scum in DDAO with GLDA system at high solution pH. The obtained results can be summarized as follows: (1) an amphoteric surfactant seems to be the most promising surfactant at a high pH for soap scum removal (2) calcium soap scum has higher equilibrium solubility than magnesium soap scum (3) the effectiveness of chelating agents for soap scum dissolution is in the following order: $GLDA > EDDS > EDTA$, which confirms that biodegradable chelating agent can be used as replacement for EDTA.

5.2 Recommendations

The replacement of conventional chelating agent to biodegradable chelating agent was succeed since the highest equilibrium solubility of soap scum was found in DDAO with GLDA in calcium soap scum system. However, there is no calcium or magnesium soap scum alone in real life but the mixing of soap scum. Thus, mixing of calcium and magnesium soap scum should be observed at various ratios. In addition, the cost of DDAO is quite high because of its purity as a consequence the commercial grade of DDAO or the other amphoteric surfactant should be investigated.