

CHAPTER I

INTRODUCTION

Paper recycling is, in theory, a simple process with only two necessary steps. First, the secondary fiber source must be broken down into contaminants and recoverable fibers. Next, the contaminants must be separated from the fiber.

Flotation deinking is a common practice for ink removal from wastepaper in many recycling paper mills. The application of flotation was successfully introduced to the paper recycling industry in the 1980s, and its application in wax removal. Chemistry of flotation process is fairly conventional involving commodity products such as caustic soda and hydrogen peroxide. On the other hand, some other chemicals are quite complex such as surfactants and clarification polymers (Ferguson, 1992a). In the system, ink particles and paper fiber are all mixed together, then air is injected in the system. The ink particles will attach to the air bubbles and float to the top layer, while, paper fiber will be left below at the bottom of the system, and collected for reuse. At present, there are a few problems occurring in flotation deinking and leading to less efficiency, for example, fiber loss.

In this study, a paper fiber (common office paper) and medium chain length surfactant (Sodium Dodecyl Sulfate, SDS) were employed in an attempt to elucidate the fundamental mechanism of collector chemistry. Both zeta potential and adsorption isotherm will be studied to elucidate the mechanism of co-adsorption of the surfactant and calcium ions on the paper fiber.