CHAPTER I
INTRODUCTION

Foam consists of two-phase media of gas and liquid with a particular structure which gas pockets are trapped in a network of thin liquid films. An essential ingredient in a liquid-based foam is surfactant. Surfactant residing at the interface is responsible for foaming tendency and foaming stability.

Foam has been in our daily life, for example, bubble baths, dishwasher detergent foam, and the foam head on beer. In addition to its wide occurrence, foam has important properties that may be desirable in the product formulations, such as fire extinguisher, champagne and cosmetics. On the other hand, foam is undesirable in several industrial processes, for example, paper making, textile dyeing, drug manufacturing, and detergency.

Detergents play an important role in laundry process. Detergents do not only remove soils and stains, but also prevent them from redeposition. Usually, consumers like to see foam in all detergent products because they believe that more foam means higher efficiency of cleaning. In fact, foam has nothing to do with the detergency. Furthermore, foam may cause the soil redeposition in cleaning process. In order to satisfy the end users, detergents must possess a high flash foam in their washing step, followed by a fast foam collapse to facilitate washing action and easy to be rinsed off.

Hence, foam controlling is very crucial in fabric washing processes. The additives to control or eliminate foam are known variously as defoamer, antifoaming agent, foam inhibitor, and foam controller. Technically, defoamer means a substance that breaks the pre-existing foam, while the antifoam or foam inhibitor is a material that prevents foam formation.

Soaps, the sodium salts of long chain carboxylic acids are traditionally main constituents as an antifoaming agent in many cleaning agents. An important characteristic of soaps is their tendency to precipitate in hard water. It has been proposed that the soap precipitate or solid calcium soaps are formed and destabilize foam film, due to their inflexible nature. Nevertheless, this mechanism is not universally accepted. Another mechanism proposed by Pugh and colleague, they

claimed that some hydrophobic particles which are found possibly cause foam rupture by dewetting mechanism.

The aim of this work is to study the effect of ions present as hardness in tap water on the foaming property of three surfactant systems by the shaking method. And also investigate the defoaming mechanism.