CHAPTER I
INTRODUCTION

Hard disk drives (HDD) are an important device that is used to store large amount of data in a computer system. The important component of hard disk drives is a slider or head which write and read information from the disk.

In Hard disk drive industry, particulate contamination has always played a role to determine the quality and reliability of the drive because trapped particles between the head and disk can cause irrecoverable data losses in several ways such as head crash, circumferential scratching, embedding on the disk, and thermal asperities, which result in low efficiency of hard disk drive (Awad and Nagarajan, 2010). Although the slider manufacturing is produced in cleaning room, it also has contaminated on the surface of slider which is normally found as a talcum powder or magnesium silicate which comes from cosmetic that is used by workers.

For cleaning process, when particulate contaminations are removed from the surface in solution, there will always exist the possibility that particles removed from surface will be redeposited onto the surface. To prevent particles from redepositing on the substrate, it must be stabilized particle dispersion in the cleaning solution (Tadros, 2005). The DLVO theory descripted the stability of the colloidal particles. The colloid stability is determined by long range particle interactions. These attractive van der Waals and replusive electrostatic forces are involved in the electrostatic stabilization of colloidal dispersions. The colloid dispersion is stable when replusive forces overcome the attractive forces, but the particle will aggregate when the attractive forces dominate (Derjaguin and Landau, 1941). Dispersion and coagulation of talcum has been studied. Ersoy (2011) found that coagulation of talc suspension is reduced depending on the pH accompanying with increase in the absolute zeta potential (ZP), which enhances the electrostatic repulsive forces between the talc particles.

A surfactant is a surface active agent which has the property of adsorbing onto the surfaces or interfaces (Rosen, 1989). Because of unique property of surfactant, adsorption of surfactant at the solid-liquid interface can enhance to stablize solid particle dispersion. Zaman *et al.*, (2002) pointed out that the dispersion

of silica particles in the presence of $C_{12}TAB$ surfactants increased when increaseing surfactant concentrations because of a large repulsive barrier.

The objective of this work is to investigate the dispersion of talcum powder in different surfactants. The behavior of surfactants on talcum powder is investigated to correlate the relation of adsorption isotherm, zeta potential, contact angle and dispersion.