CHAPTER I
ITRODUCTION

Detergency can be defined as the ability of the detergent to clean or remove soils from fabrics. This detergency process depends on several factors, e.g., detergent type and concentration, mechanical action during washing, washing temperatue, and substrate. The soils can be divided into three categories: oily soils, stained soils, and particulate soils. Solid particles such as clay, carbon black, alumina, silica, iron and other metal oxides are classified as particulate soils. Accordingly, detergency studying is necessary for the development of detergents, washing machines, textile fibers and textile finishes.

Particulate soils found on the fabric have a multitude of properties that affect soiling and detergency: chemical composition, surface characteristic, size, shape, hardness of the particle and particle size distribution and so on. The best way to remove particulate soils is to use a surfactant, which can be adsorbed preferentially at the water-solid particle interface, reduces the interfacial tension and accordingly, reduces the adhesion forces binding the particles together.

In this study two types of surfactants: sodium dodecyl sulfate (SDS), an anionic surfactant, and octyl phenol ethoxylate (Triton X-100), a nonionic surfactant were investigated. Three types of fabrics; pure cotton, pure polyester and polyester-cotton were used. The objective of this study was to investigate the effect of surfactant type on the removal of carbon black from different fabrics and to correlate the detergency results with the adsorption isotherm and zeta potential.