

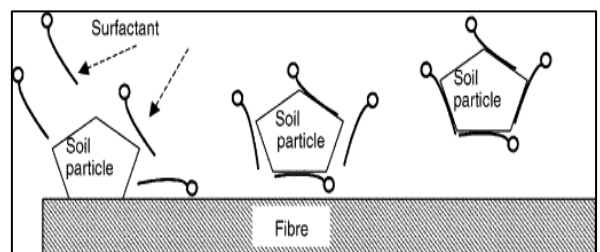
SOIL RELEASE FINISH – PART I

REF: TT/ FEBRUARY 2020 / WK 1

Introduction

Soil release is a chemical finish that allows removal of soils by the laundering process. This finish allows stains to leave the fabric faster and makes fabric cleanable. A soil release finish can help prevent liquids and powders from soaking into the fabric. Soil release finishes are necessary for hydrophobic fabrics which have very low water absorbency. Because in these fabrics, soil release finishes makes the fibers absorbent (i.e. hydrophilic), allowing better wettability for improved soil release. Soil release finishes also protect fabric from soil re-deposition during laundering.

of soils by the laundering process.



Soiling of fabric and its mechanism

Soiling means accumulation of dust particles and soil onto the fabric. Natural fibers and synthetic fibers both attract dirt and get soiled but synthetic fibers attract soil to a greater extent than natural fibers. These fibers do not release soil easily during washing. Due to absorption and retention of soil, the whiteness and brightness of a fabric is spoiled and it appears yellowish and dirty.



Fig 1.1 – Soiling of Fabric



A fabric gets soiled mainly by three types of mechanism.

1) **By Mechanical Adhesion** - The soil is adhered to the fabric by direct contact with a soiled surface or by rubbing of the fabrics against the skin or picking up dirt from liquid or air. The fabric construction facilitates such adhesion as the soil gets entrapped in inter fiber and inter yarn spaces or even into the capillary spaces of the fiber where it gets firmly deposited. Also soil which is oily in nature can diffuse into the fiber.

2) **Adhesion by electrical forces** - The soil is adhered to the fabric due to attraction of dust particles from air by electrically charged fiber surface. This occurs generally with synthetic fibers because of their low moisture regain property. Positively charged fabric surface is soiled more than negatively charged surface.

3) **By Re-deposition of soil during washing** – Re-deposition of soils occurs with nylon and polyester fabrics. Soiling is the effect of time gap between soiling and washing. When a soiled fabric is kept unwashed for longer period, the soil diffuses inside the fiber and it becomes difficult to remove it.

Why synthetic fibers are more prone to soiling than natural fibers?

1) **Because of Moisture Regain Properties** - Moisture regain of the fiber is the most important factor that influences soiling. Lower the moisture regain, higher is the attraction of soil. When the moisture regain of the fibers are below 4%, soiling increases very fast.

Thus, natural fibers and regenerated fibers which have high moisture regain, the soiling is not very intense. Whereas synthetic fibers have low moisture regain, attracts dirt and dust from atmosphere. Polyester has the lowest moisture regain among synthetic fibers, thus attracts maximum soil.

In the case of blends with cellulosic fibers, whatever soil is removed from the cellulosic component during washing, gets redeposited on the synthetic fiber because the synthetic fiber attracts oily matter from the dirty wash waters.

2) **Electrostatic Charge** - Synthetic fibers accumulate static charge during manufacture and use. Charged fibers attract soil from the atmosphere, positively charged fabric attracting more soil than the negatively charged one.

To be continued....

Wishing you a great week ahead!

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