TOPIC: Factors influencing Soiling of Textiles

REF: TT/ MAY 2015/ WK 5

Moisture Regain:

- Moisture regain of the fiber is the most important factor that influences soiling. Natural fibers and regenerated cellulose rayon's have high moisture regain and have little tendency to accumulate static electricity. Even if static electricity is generated, it is quickly dissipated to the atmosphere.
- Therefore, the problem of soiling and soil removal is not very acute in the case of fibers having high moisture regain.
- Synthetic fibers have low moisture regain, therefore they accumulate static electricity which attracts dirt and dust from atmosphere.
- Lower the moisture regain, higher is the attraction of soil. When the moisture regains of the fibers drops below 4%, soiling increases rapidly.
- Polyester has the lowest moisture regain (0.4%) among synthetic fibers; therefore it attracts maximum soil. Since these fibers are hydrophobic, they do not swell in water and the removal of soil from the fiber becomes difficult.
- In the case of blends with cellulosic fibers, whatever soil is removed from the cellulosic component during washing, gets redeposit on the synthetic fiber because the synthetic fiber being oleophilic attracts oily matter from the dirty wash waters.

Electrostatic charge:

- Synthetic fibers accumulate static charge during manufacture and during wear. Charged fibers attract soil from the atmosphere, positively charged fabric attracting more soil than the negatively charged one.

Fabric Construction:

- Fabric construction, yarn count, twist and the cross section of the fiber influence soiling. Smaller the denier, greater is the tendency to soil because circular cross sectional fiber retains less soil than one with an irregular cross section

- Higher the twist in the yarn, greater the soil retention. Because Fabric with protruding fibers assists soiling.

- Loosely woven and open knitted fabrics are more prone to soiling than closely woven fabrics but removal of soil from loosely woven fabrics is easy. Because Fabrics made from filament yarn does not get soiled as fast as those made from spun yarns.

Particle size of Soil

The smaller the size of the soil particles, grater is the soil retention by the fabric.

Mechanical work lead in soil release finish:

- Hydrodynamic flow of washing machine carrying away the removed soil

- Fiber flexing to force soil from between fibers during washing

- Surface abrasion to remove soil physically during washing

- Swelling of finish to reduce inter-fiber spacing.

Have a great week ahead!

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