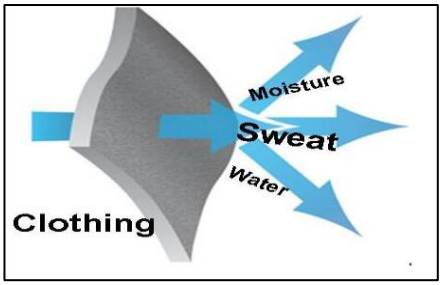
TECHNICAL TUESDAYS

MOISTURE MANAGEMENT IN TEXTILES

REF: TT/JANUARY 2020/ WK 4

What is Moisture Management?



Moisture management or wicking is the controlled movement of liquid from the surface of the body to the environment. In case of textiles, it is the special fabric that has the ability to manage the moisture (which is perspiration) by transporting away from the skin to the fabric's outer surface. Transfer of perspiration from the skin to the atmosphere regulates heat and maintains body temperature and keeps the body cool. The main aim of moisture management fabric is to make the skin feel dry. The human body releases water vapor at ambient conditions even when it is at rest. While doing any activity like walking, playing, and the body warms up and sweats more; this gets absorbed by the textile. This moisture needs to be transferred to the surface of the fabric for evaporation and thus producing a cooling effect. Therefore, to make a wearer feel comfortable, not only should the fabric evaporate the perspiration from the skin surface to the fabric surface but, the moisture should also get evaporated. Hence, it is very essential to have a moisture management fabric so as to make the wearer feel comfortable.

Moisture Management Mechanism

The transportation of moisture to the surface of the fabric is done by a capillary force known as wicking. As the gaps between the individual fibers becomes less the force increases. Thus, finer fibers will have smaller gaps and better moisture transport. Then the moisture evaporates to the atmosphere.

The mechanism of moisture management fabric can be described in brief as below:

- Uptake of moisture from the skin surface.
- Removal of moisture away from the skin and transport through the fabric surface.
- Spreading of moisture within the fabric structure.
- Absorption of moisture within fibers and store sweat away from the skin surface.
- Evaporation of the moisture from the fabric surface.

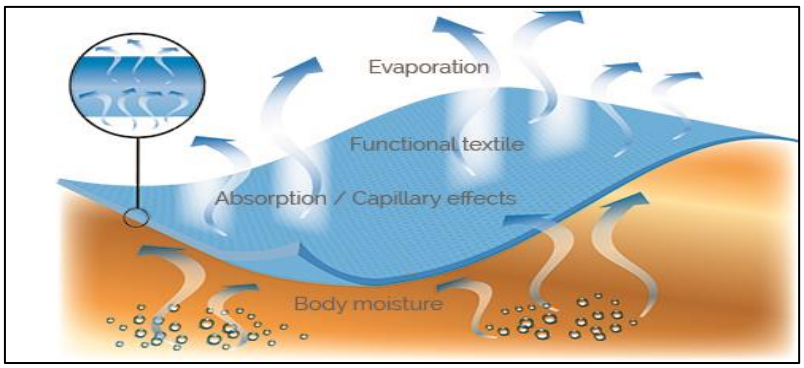


Fig 1.1 Moisture Management Mechanism

Moisture Management Fibers/Finishes

Fibers preferred for moisture management are polyester fibers for its low moisture absorption, polypropylene for its excellent moisture wicking property, and nylon for wicking and durability properties. Besides this, there are moisture management finishing agents that improve the ability of textiles to absorb humidity from the skin, transport it to their outer surface and release it into the surrounding air. Such finishes are capable of improving fabric performance to a great extent.

Test Methods

AATCC has developed test methods to evaluate Moisture Management properties. A moisture management tester is used for this.

Fig 1.2 Moisture Management Tester

Wishing you a great week ahead!

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