

SmartFabric
technology™

Where It All Started



- First developed for NASA's space suit by Triangle Research in 1988.
- Commercialized in 1994
- First applied to outdoor goods in 1997
- Widely and speedily applied to today's fashion apparel and bedding



Where It All Started



- Wearing outlast pants and socks in astronaut's space exploration.
- Applying outlast to astronaut's gloves and shoes after NASA's test.



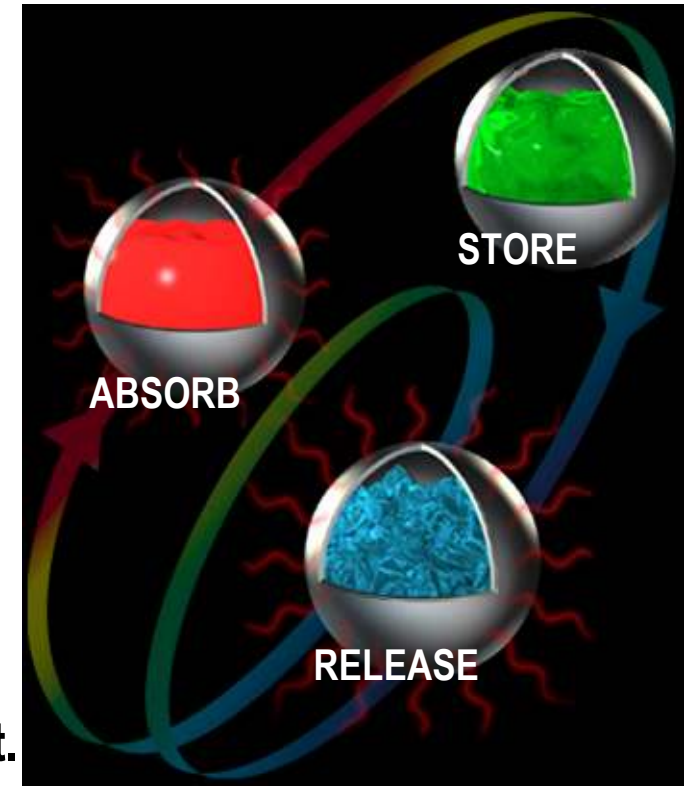
- Thermocule is put in plastic shell which is very strong and persistent.



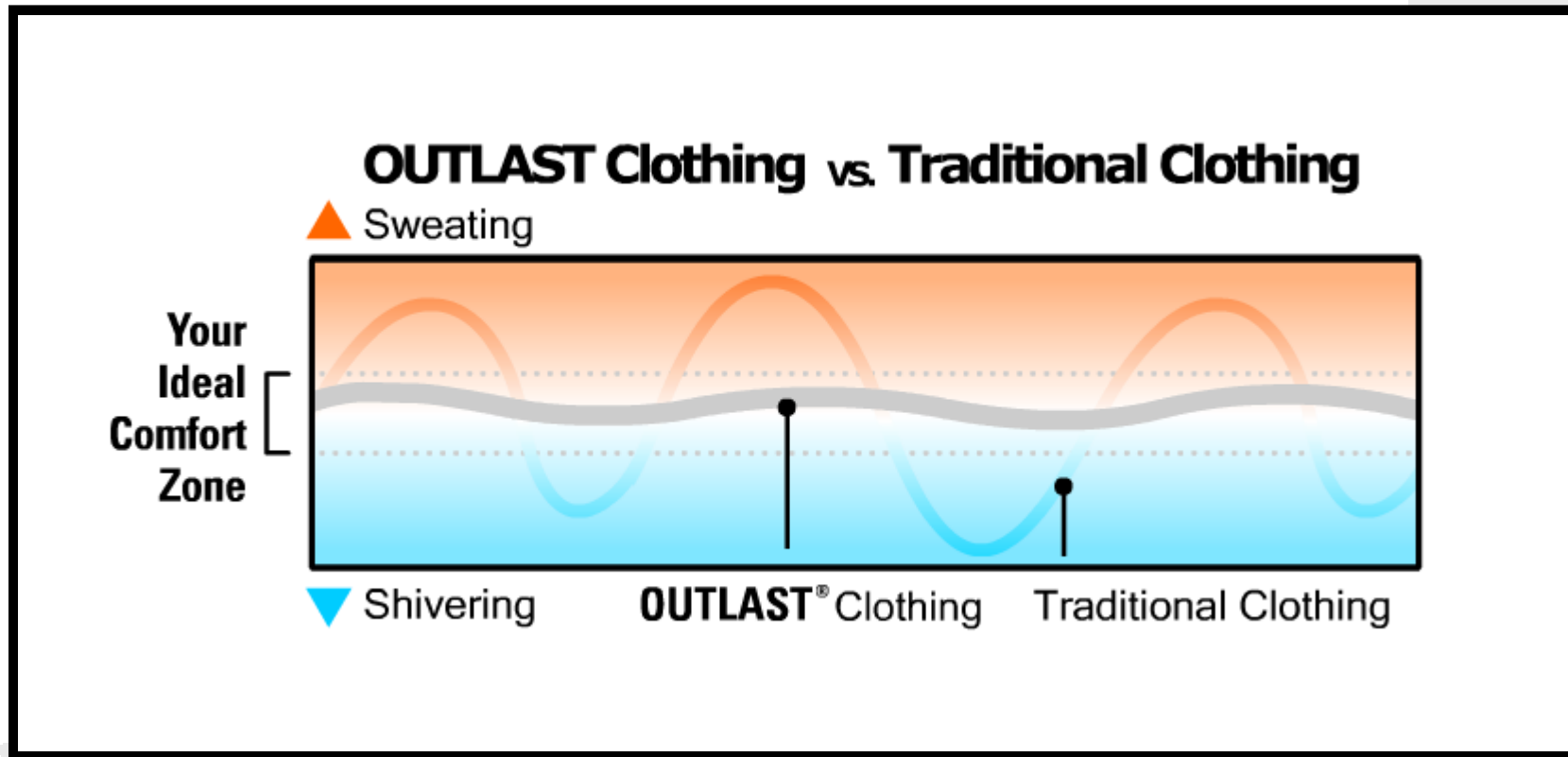
- Thermocule is very microscopic : the size of holding 1000pcs in the ball of a ball-point pen.
- Thermocule is applied to fiber, fabric, and foam.

The thechnology of outlast : How does it work when applied to products ?

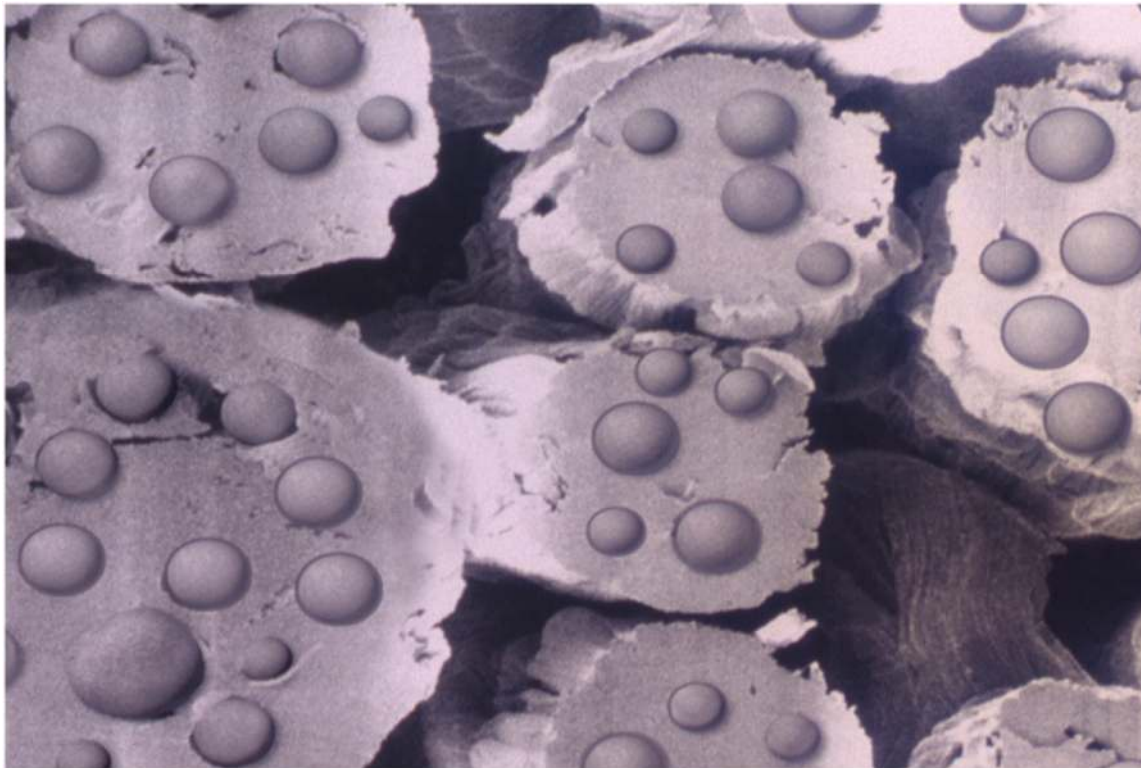
- During physical activity, outlast materials control the temperature by absorbing, storing, and releasing heat according to skin's temperature change.
- When the body temperature is too high, outlast materials absorb the overheat and store it. When the body temperature falls down, outlast materials keep the body warm by releasing heat. This cycle is constantly repeated.



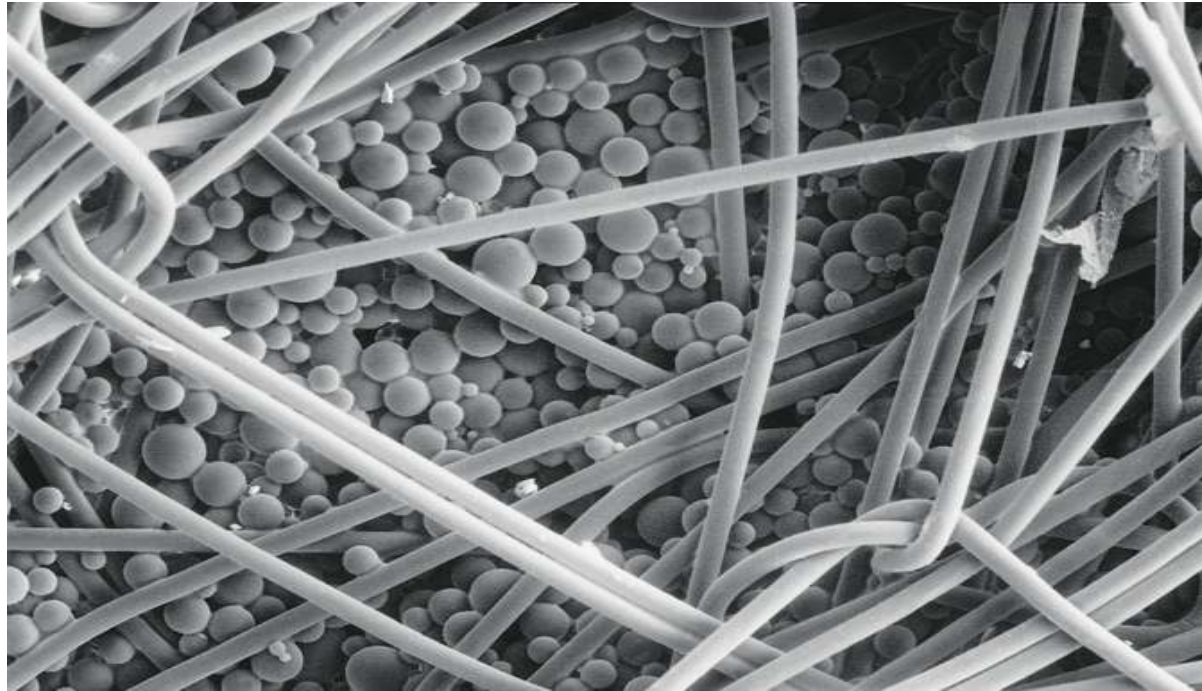
How does outlast technology work?



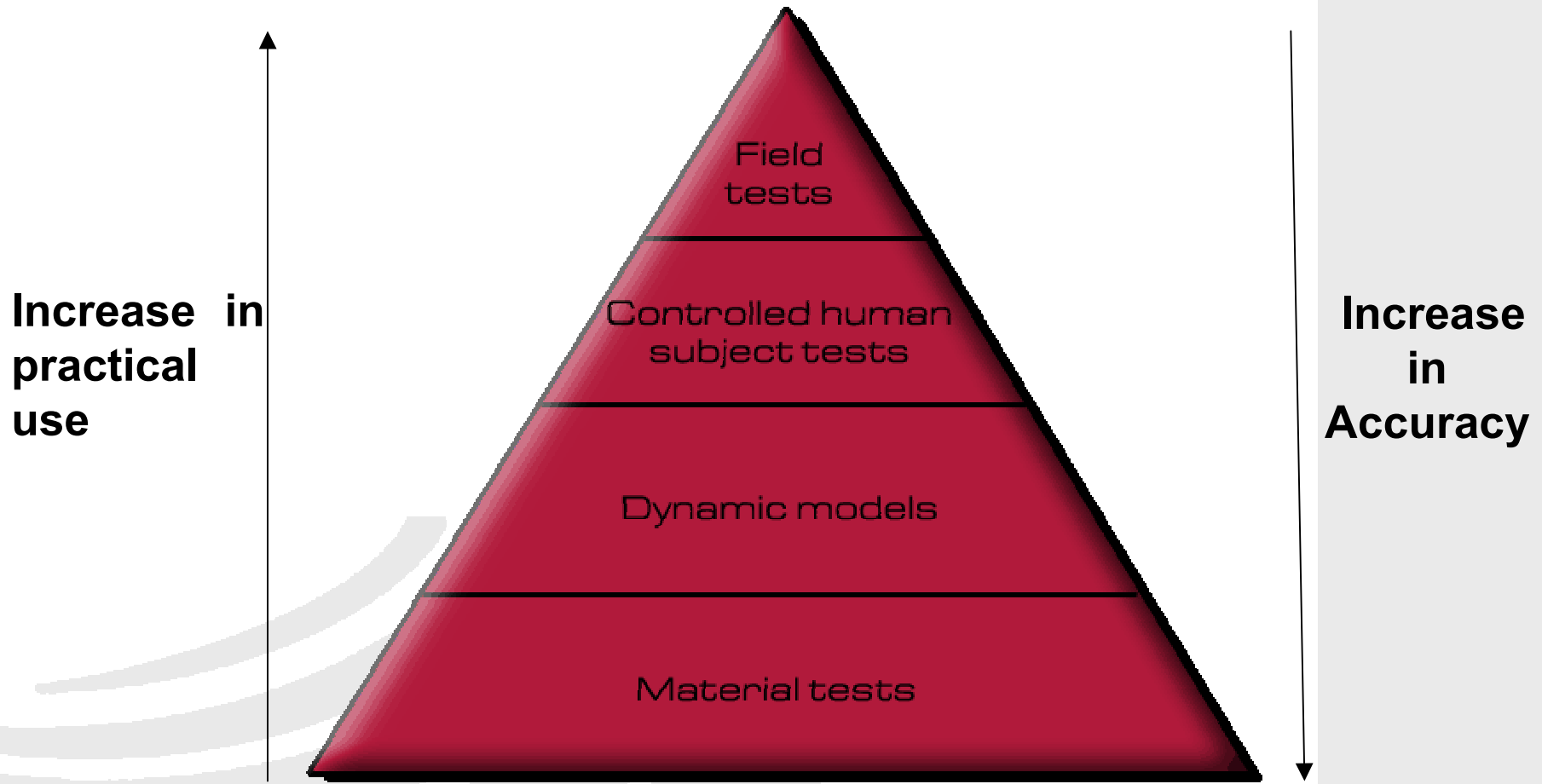
Adaptive Comfort Outlast Fiber



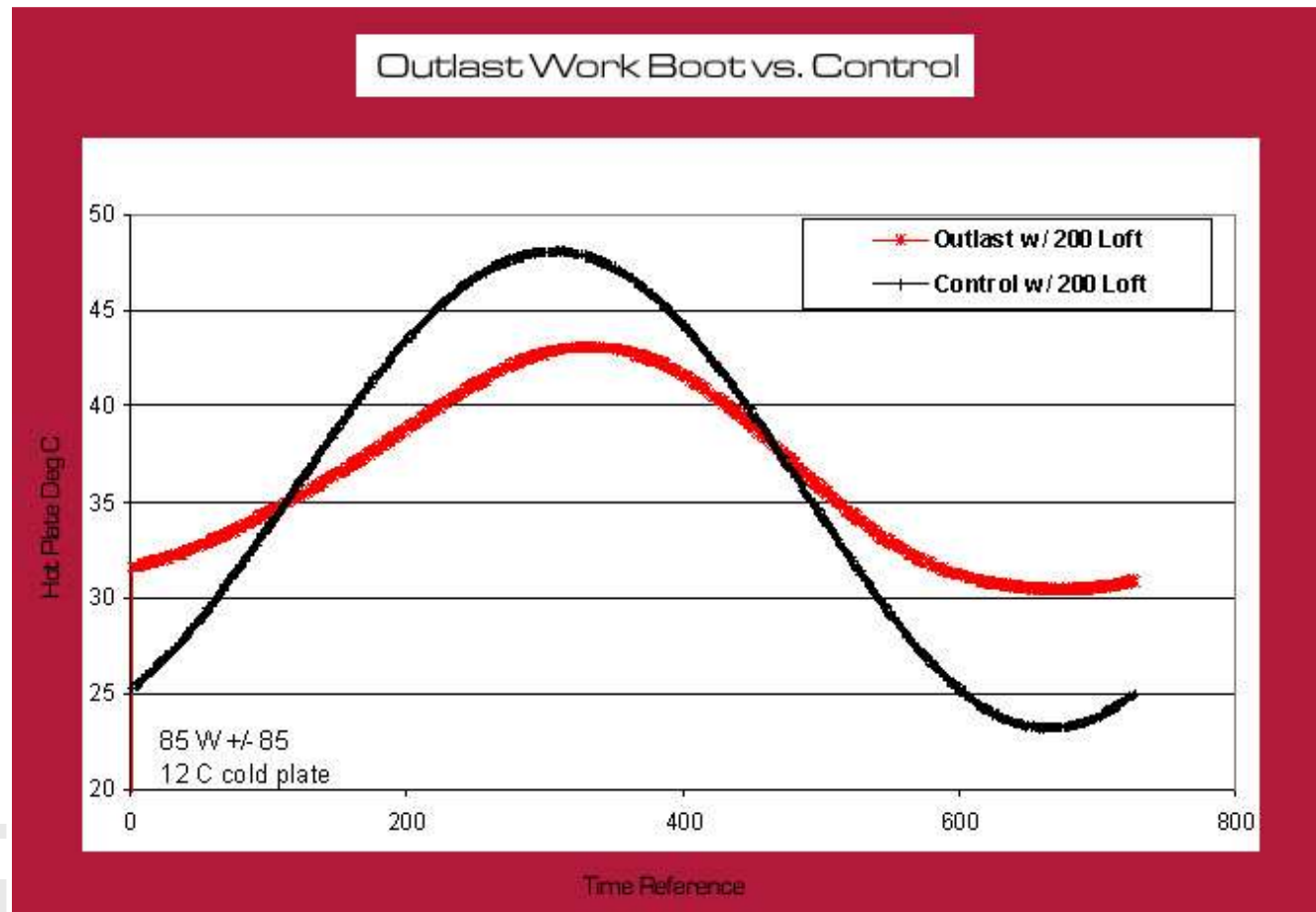
Adaptive Comfort Outlast Fabric



The test method



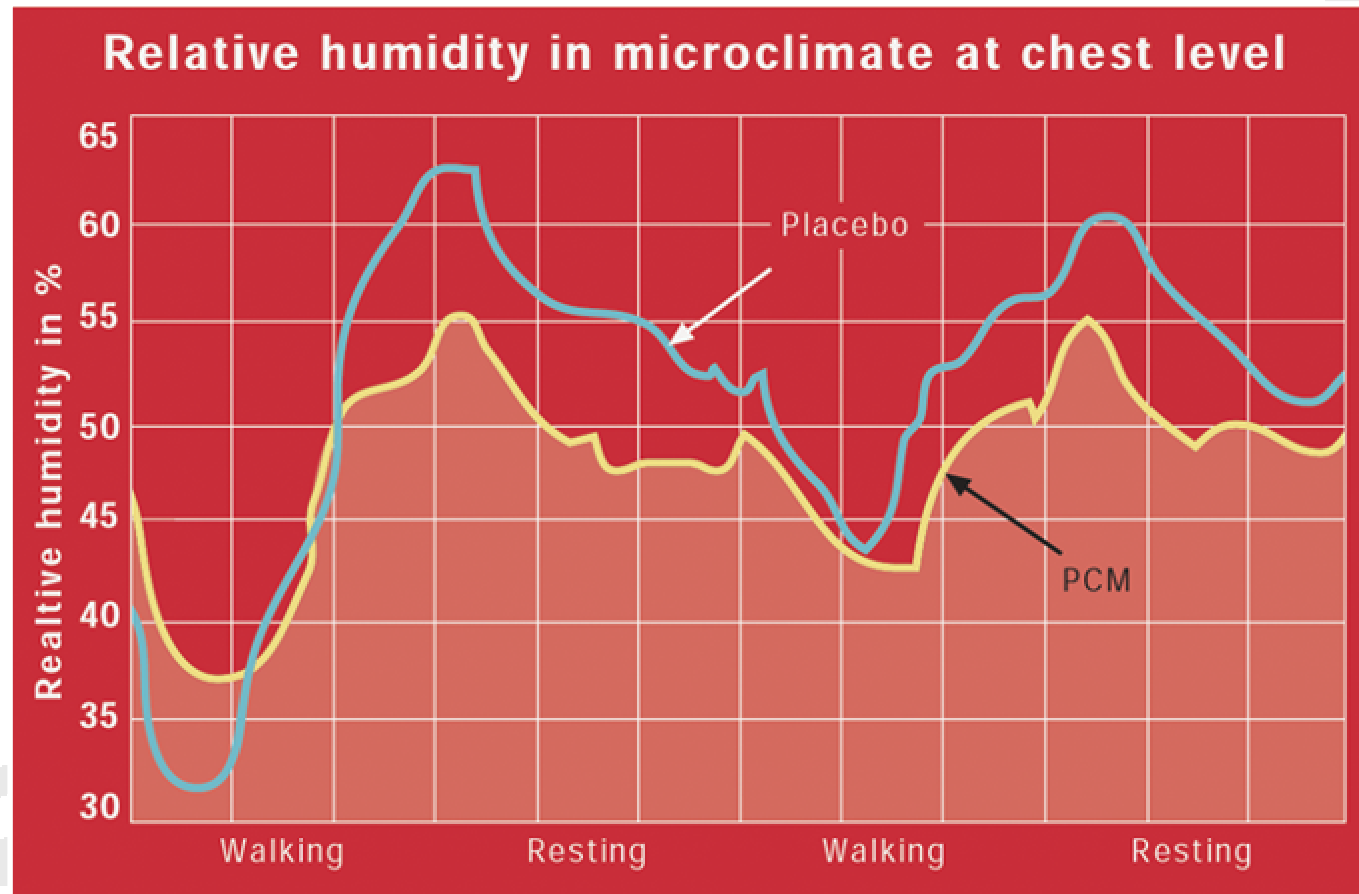
Adaptive Comfort Test Data



Humidity Test



20% lower in relative humidity



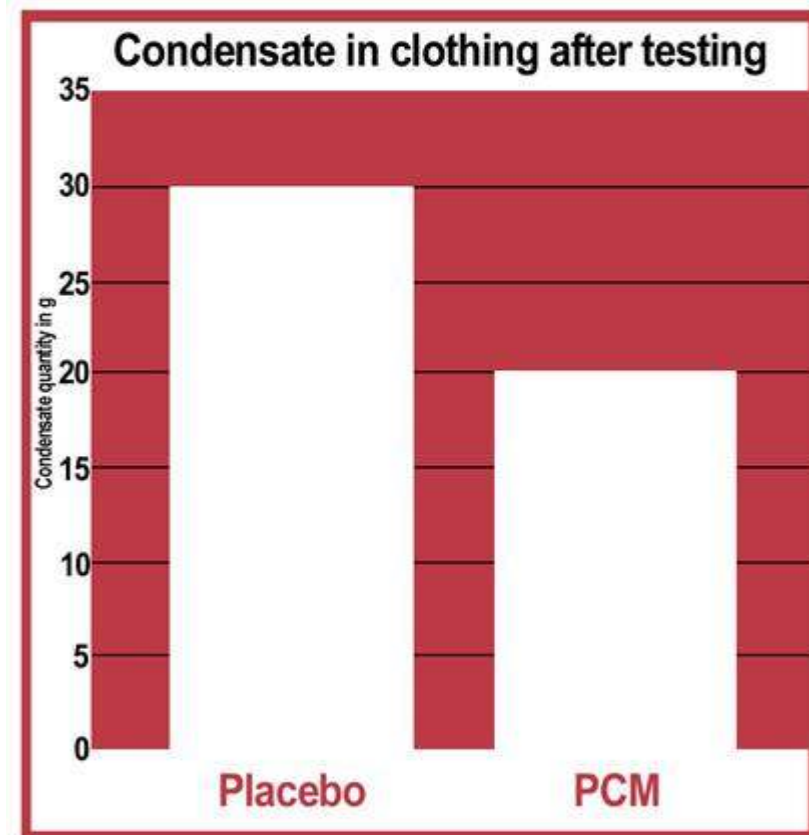
2001.

Adaptive Comfort Study

The amount of sweating and wetting clothes decreases by 33%



- As clothes are less wet with sweat, they can control the temperature.
- Human body feels unpleasant by the relative humidity of 5%.



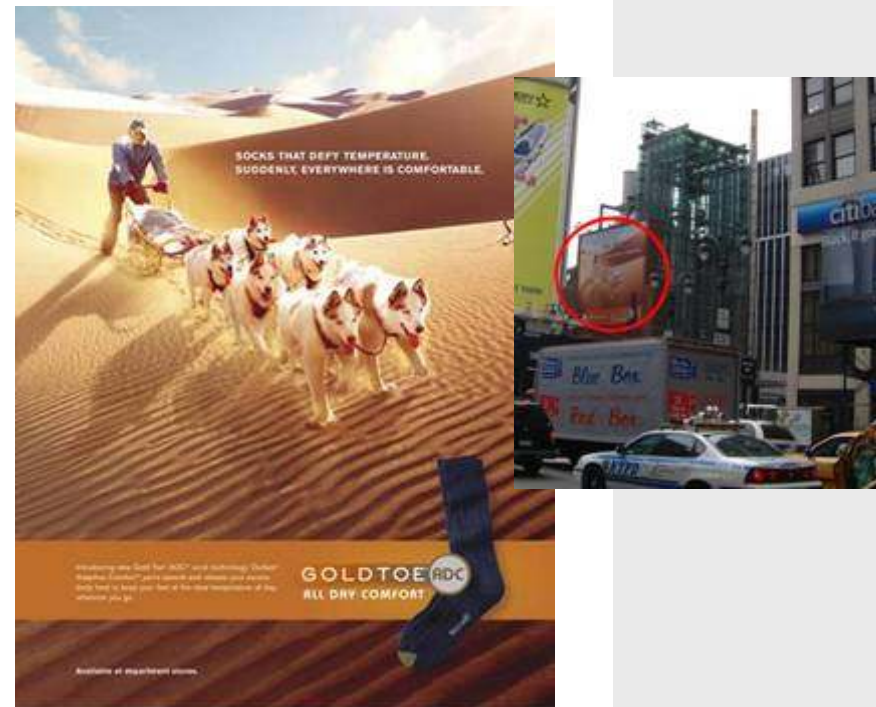
Textile Magazine - Oct. 2001

Branding



Outlast Adaptive Comfort

Advertising



Review:



- **Technology** : Apply microcapsule to fabric, fiber, and foam.
- **Function** : Continue absorbing, storing, and releasing heat repeatedly according to the change of temperature.
- **Effect** : Feel comfortable and pleasant by wearing outlast products.