



## Discover the natural performance benefits at a glance

- **Vapour management** – making the wearer feel cooler quicker and greatly reducing the tendency of vapour to condense into liquid sweat.
- Keeps you **cooler** when exercising.
- The best wicking there is. **Moves sweat away** from the skin to the outer part of the fabric, leaving the inside dry.
- Permanent and natural **non-odour**.
- **Drier-to-the-touch** garments that feel less 'clammy' to the skin during activity.
- **Natural elasticity**.
- Natural **UV protection**.
- A natural micro-climate system that can **reduce 'post exercise chill'** which allows sport and 'activewear' garments to **breath naturally**.

## Sportwool™'s unique natural benefits

The Sportwool™ performance concept effectively 'air-conditions' an athletes body before during and after exercise. It is changing the sportswear and outerwear industry's approach to fibre and fabric technology and is re-introducing wool to professional sports and outdoor clothing systems.

Wool is naturally hydrophobic

although it hates water it is capable of buffering and transportation of up to 30%\* of its mass in vapour. A molecular view of a wool fibre reveals that around its central strand (or protein backbone) there exist Lysine and Aspartic side chains. The Lysine side chain contains the molecular group  $\text{NH}_2$  in which the Hydrogen atoms have a net positive charge relative to the Nitrogen. The Oxygen atoms of a water vapour molecule ( $\text{H}_2\text{O}$ ) on the other hand have a net negative charge relative to the Hydrogen atom.

As a result

the net negative charge on the Oxygen atom of the water vapour molecule is attracted to a net positive charge on the Hydrogen atoms in the  $\text{NH}_2$  group.

This Hydrogen/Oxygen attraction process has the effect of allowing wool fibre to move water vapour through themselves and release it into the outside environment. There, if wool fibres are next to the skin, unlike most fabrics, wool actually speeds up the heat transfer process.

Resulting in muscles which will be cooler and able to work at higher levels without having adverse affects on the body's finely tuned temperature requirements. No other fibre benefits from wool's complex structure and the electrically charged side chains. Accordingly, wool's vapour processing abilities and considerable cooling benefits are unique in clothing.

Sportwool™ combines the unique high-performance composite or bi-component fabric structures of Merino wool with other fibres in such a way that the fabrics are able to take advantage of wool's unique properties.

The end result is modern, lightweight clothes where a wearer clearly notices the difference this fabric makes to physical comfort during exercise.

## Sportwool™, a drier micro-climate

In Sportwool™ technology, the Merino Wool fibre in contact with the skin actively attracts perspiration vapour molecules before they have a chance to condense to liquid sweat.

Wool can store water vapour up to 35% of its own dry weight. Yet it still remains dry to touch and speeds up the body's cooling mechanism.

Therefore, any Sportwool™ fabric with its unique vapour management abilities produces a superior heat transfer process.

Fibres that cannot process vapour act as a barrier to the evaporation process and create humid, sweaty conditions caused by sweat vapour condensing between the skin and the garment.

Sportwool™ is based on the principle of combining the best in modern man-made fibre technology with proven attributes of ultrafine natural Merino Wool.

## Sportwool™, a cooler micro-climate

During exercise the human body perspires in order to neutralise any adverse change in core body temperature.

To survive we have to sustain the correct internal core body temperature. For humans this is near 37.5°C as possible. Any fluctuation greater than plus or minus 4% can result in heat stroke and hypothermia which in turn becomes life threatening.

That is why temperature control doesn't just matter- it is essential.

Muscle activity during exercise produces a rise in core body temperature. Blood supply to the skin's surface is increased, triggering perspiration as the body's natural cooling mechanism.

Perspiration is first expelled from the skin's pores in the form of moisture vapour. It will later condense to liquid sweat on the skin's surface.

Clothing is a potential obstacle to the vital evaporation process, especially in a rising temperature scenario. It is even more true of clothing which is unable to manage vapour, which establishes an additional thermal barrier and reduces the heat-transfer rate from the body.

## Sportwool™, moves the sweat away fast and efficiently

Trials were conducted in climate controlled chambers using 30 athletes in peak physical condition.

The athletes exercised on a cycle ergometer at workloads relating to their individual maximum work potential as measured by oxygen uptake or VO<sub>2</sub> Max.

Trials involved a 2 minute warm up at a workload of 100 watts. The workload was then increased 75% of the pre-determined VO<sub>2</sub> max and maintained for the remainder of the trial.

The objective trials showed Sportwool™ left the athletes feeling drier, less clammy and more comfortable.

Objective measurements found that Sportwool™ had a lower rate of moisture concentration in the skin-clothing micro-climate than the competitive fabrics, and smaller fluctuations in moisture level with time.

# WELCOME TO THE LAB

In 1994 research into the physiological benefits of wool led to the breakthrough development of Sportwool™. A technology that provides garments with unique vapour management and wicking properties, whilst maintaining Merino wool's natural performance benefits.

The removal of the vapour from the micro-climate between the skin and fabric reduces the formation of liquid sweat leaving you drier and more comfortable. Sportwool™'s unique natural thermal regulation and vapour management properties cool you down when it's hot and keep you warm in extreme cold. So whether you're skiing on a cold winter morning or cycling in the heat of summer, Sportwool™ is the natural choice when you want to perform to the maximum.

