

# Australian Merino fibre in “Sports and Outdoor apparel”

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Wednesday 21 November 2007

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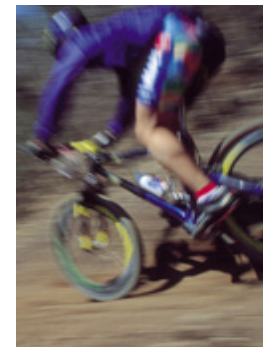
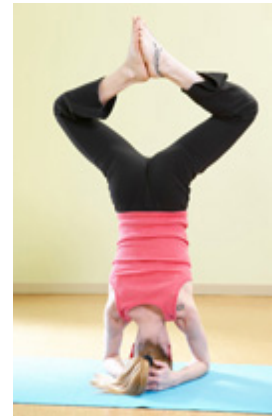
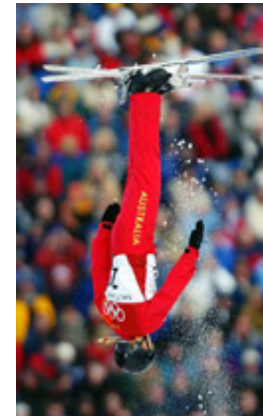
# Overview - Outdoor wear

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- Merino's natural attributes have always made it a favourite for Outdoor wear, and recent innovations can only enhance its popularity.
- The over-riding trend in Outdoor wear is the increasing relevance of environmental considerations, a shift in focus that benefits renewable and 100% biodegradable Merino.

# Merino's natural "Outdoor" Advantages

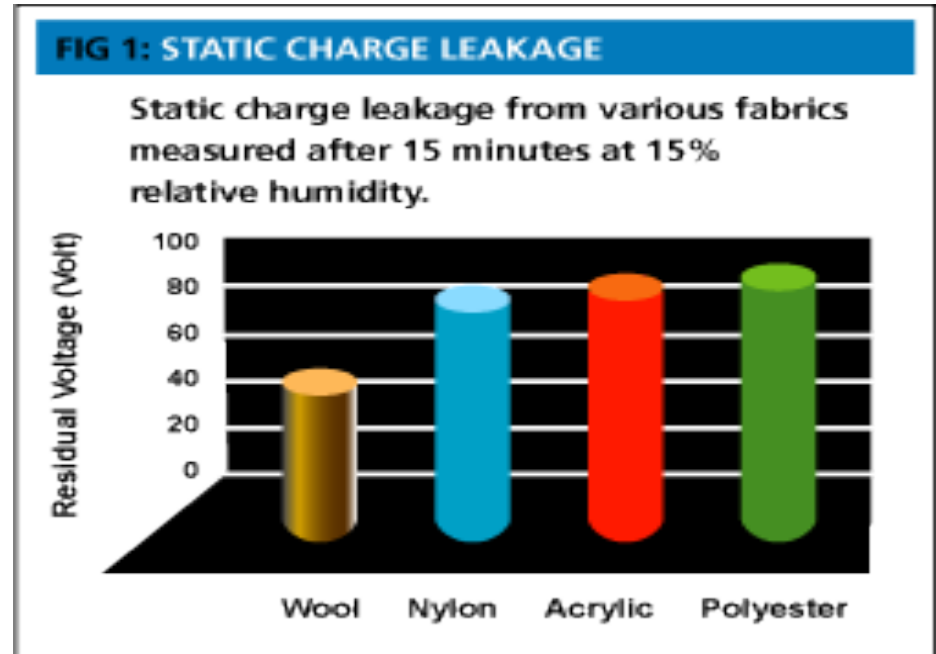
- Antistatic
- Moisture transportation
- Temperature regulation
- Stretch
- Odour reducing
- Next-to-skin softness
- UV protection
- Additional benefits
- Merino testimonials
- Conclusion



# Antistatic properties

Merino's good natural conductivity increases as the moisture content rises. Synthetics on the other hand tend to be poor natural conductors, a characteristic not helped by their negligible capacity to absorb moisture.

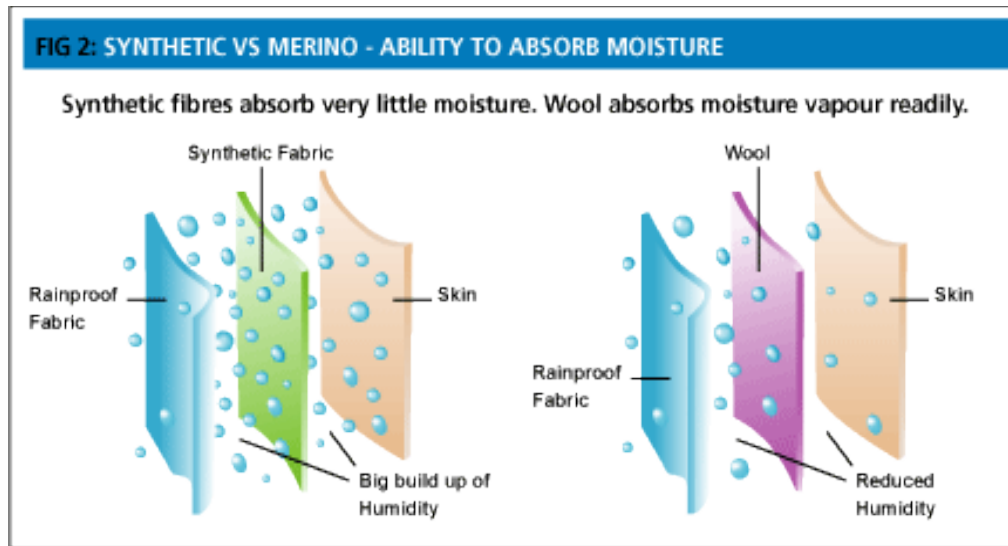
Consequently, static electricity is more efficiently dissipated by Merino than by synthetics (Fig 1).



# Moisture Transportation

Merino has the greatest capacity to absorb moisture vapour of all apparel fibres because its internal structure is more complex than synthetic fibres, creating more sites where moisture can bind.

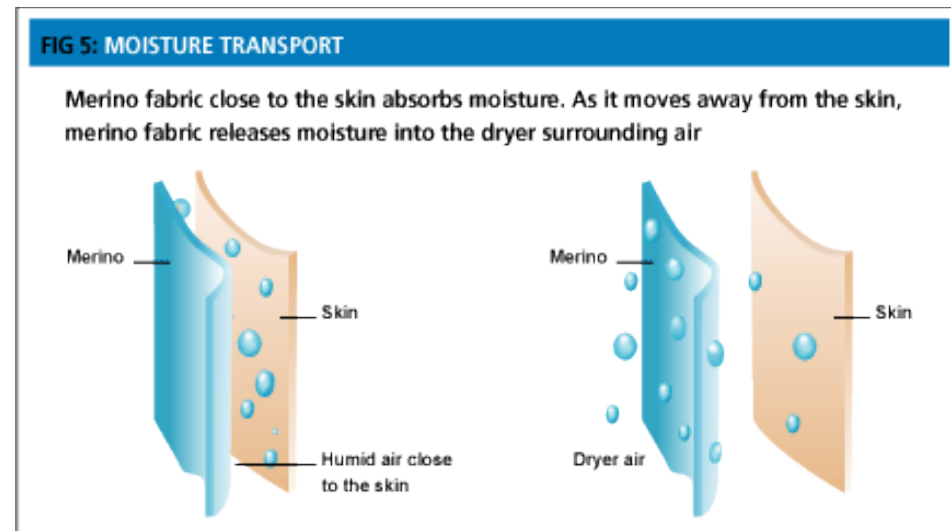
Merino has a tremendous capacity to absorb vapour – up to 35% of its own weight.



# Multi climate hot and cold.

Merino's insulation capacity has made it synonymous with warmth, yet the ability to insulate the wearer from extremes of cold also helps protect the individual from excessive heat. Like a Thermos™ Merino insulates you from the worst of the ambient temperature.

This explains why Merino has been worn by both Shackleton on his Antarctic adventures and by the Bedouin of the Sinai.



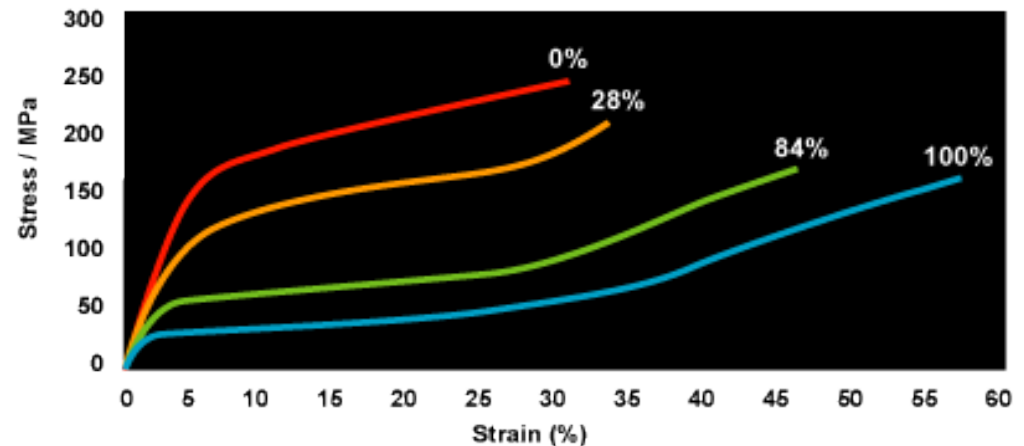
# Elasticity

The chemical and physical composition of the Merino fibre provides it with an excellent natural elasticity that improves with moisture content.

The Merino fibre is highly extensible, a characteristic that increases as it absorbs water

FIG 1: STRESS/STRAIN OF MERINO AT VARIOUS MOISTURE CONTENTS

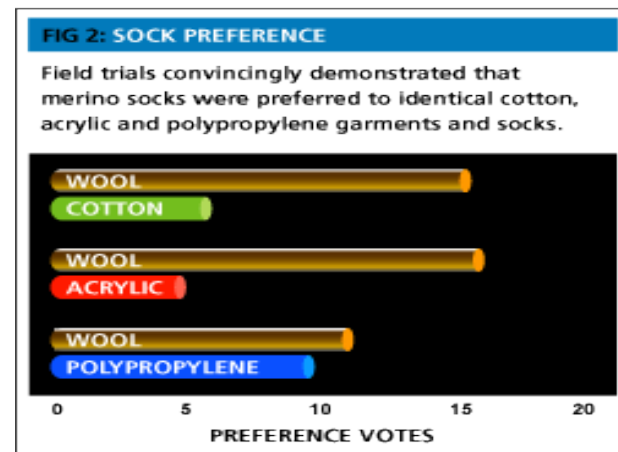
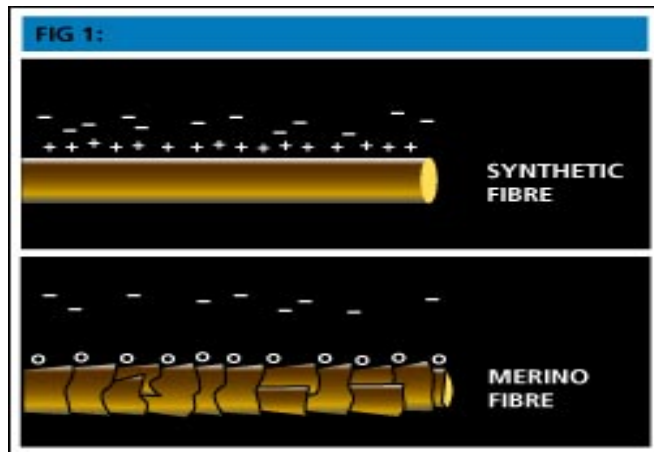
The extensibility of merino rises with moisture content.



# Odour reducing

While sweat itself has no odour, if it remains on the skin in time bacteria develop and create unpleasant body odours. Merino reduces the opportunity for odours to generate because it is more efficient than other textiles at absorbing sweat and evaporating it into the air.

Studies have shown that bacteria are more attracted to the smooth, positively charged surface of a synthetic fibre than the scaly surface of a Merino fibre which carries no charge.





# Natural softness

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## Next-to-skin-comfort

Traditional wool products tended to be itchy because of the high fibre diameter of the wool. But Merino fibres are much finer than other types of wool, and feel as soft as silk. So, for thermal underwear, and other next-to-skin garments, nothing feels as good as Merino



# Superior natural UV protection

- A study by Gambichler found that Merino provided superior UV protection when compared to cotton and synthetics, making it a better choice for extreme enthusiasts with prolonged exposure to the sun. 70% of the Merino samples tested had a UPF  $\geq$  50+.

FIG 1: UV PROTECTION OF COMMON FABRICS

The Gambichler study showed that more than half of common fabrics have insufficient UV protection of < UPF 30+.

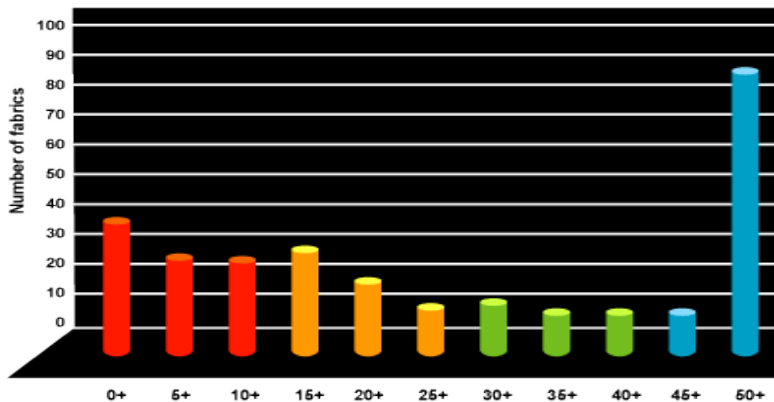


FIG 2: UPF RATING OF SUMMER FABRICS OF DIFFERENT FIBRE TYPES

All merino samples passed the test, and more than 70% of samples delivered the highest possible value of UPF 50+.

Cotton	7	21	14	14	21	-	-	-	7	-	14
Wool	-	-	-	-	-	-	-	9	18	73	
Linen	-	31	30	22	17	3	-	-	-	-	
Viscose	41	11	10	19	6	3	3	3	1	1	1
Polyamide	38	6	19	-	-	-	-	-	-	-	38
Polyester	2	-	0	4	-	2	2	-	4	7	72
Blends	-	-	4	6	4	8	6	8	6	13	46
	0+	5+	10+	15+	20+	25+	30+	35+	40+	45+	50+

# Natural protection

While the interior of a Merino fibre is hydrophilic – it attracts moisture – the scales on the exterior of the fibre make Merino hydrophobic – it repels water. So, while Merino next to your skin absorbs sweat to keep you comfortable, a light shower won't penetrate.

**FIG 7: THE HYDROPHILIC CORE (CROSS SECTION)**

**Synthetics produce negligible heat of sorption because they aren't able to absorb as much moisture as merino.**



**Merino**

**Synthetic**

# Additional benefits of Merino fibre.

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## **Renewable**

Merino is a natural renewable resource. Synthetics, by comparison, are made from petrochemicals, an eminently exhaustible resource.

## **Biodegradable**

Although Merino is extraordinarily durable, with a single fibre able to be bent twenty thousand times before breaking, in time Merino will degrade and return to its component elements.

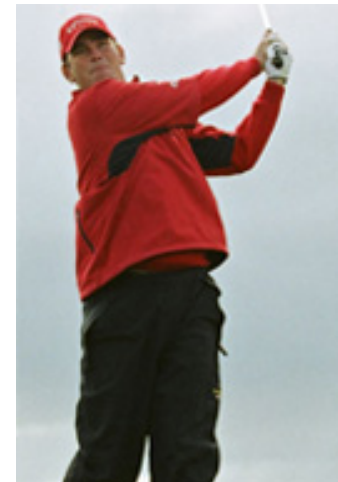
## **Environmentally responsible**

Merino may be grown organically, i-Merino fabrics were awarded the European Union's Eco-label, the first wool fabric brand worldwide to have been recognized with that label.

# The following have performed in Australian Merino.

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Manchester United, Adelaide Crows and Sydney Swans AFL teams, Australian test and one day cricket teams, Thomas Bjorn (Ryder Cup golfer).



# In conclusion... Australian Wool Innovation aims to:

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- Introduce Australian Merino fibre to the Outdoor brand and retail market on a global scale.
- Partner with global brands/retailers to increase demand for Australian Merino wool.
- Co Invest in projects that will bring commercial success to market.
- Continually develop our B2B and KIM marketing strategies.
- Continue to drive research projects through existing science service providers.