

# Wool – A High Performance Fibre

**Author:**  
**Dr Paul Swan**

*Fibre choice defines the performance and safety of our clothes.*

*Wool's resilience makes wool garments more comfortable as they move easily with the body while retaining their shape*

Professional risk takers and extreme sport athletes choose wool clothes to help them withstand extreme environmental conditions and protect them from exposure to severe situations.

Wool's natural properties offer

## Thermo and Moisture Management

- Wool fibres create a microclimate for the body that can quickly adapt to changing situations
- Wool clothing can retain or release heat and moisture allowing the body to remain comfortable whether conditions are hot, cold, dry or wet <sup>1,6</sup>

## Odour Management

- By absorbing moisture, wool reduces the amount of sweat on the body
- Less sweat on skin means less body odour
- Wool locks in odour compounds resulting in less smell coming from the garment<sup>2,8</sup>

## Resilience

- Wool fibres can bend 20,000 times without breaking
- A wool fibre can stretch to more than 30% if its length and then return to its original shape <sup>3</sup>



### Flame Resistance

- Wool is high in nitrogen and water making it naturally flame resistant
- Even exposed to heat above 570°C, wool won't melt onto the skin
- Wool emits less smoke and toxic gas than other fibres
- When exposed to fire wool can self-extinguish, preventing the spread of flame <sup>4,7</sup>

### UV Protection

- Wool offers natural UV protection by absorbing radiation throughout the UV spectrum
- Wool fabrics have a UV protection factor of 30+ <sup>5</sup>

### Anti-Static

- Wool retains moisture, making it less prone to building up a static electric charge
- This is an important factor in the operation of electrical equipment
- It is also one of the reasons that makes wool fabric a top choice for space travel <sup>1,7</sup>



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*There is no doing laundry in space. Odour resistance makes wool fabric a natural choice for personnel of the International Space Station. The high oxygen levels on a space station make flame resistance important too – as does a lack of lint, which can clog up sensitive machinery.<sup>9,10</sup>*

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<sup>2</sup> Laing R., Swan P. (2016) Wool in Human Health and Well-Being. In: Fangueiro R., Rana S. (eds) Natural Fibres: Advances in Science and Technology Towards Industrial Applications. RILEM Bookseries, vol 12. Springer, Dordrecht

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<sup>4</sup> Ingham, P. E., Edwards, R. J., Youngman, P., 1983. The flammability of apparel fabrics sold in New Zealand. Wool Research Organisation of New Zealand.

<sup>5</sup> Gambichler, T., Rotterdam, S., Altmeyer, P., & Hoffmann, K., 2001. Protection against ultraviolet radiation by commercial summer clothing: need for standardised testing and labelling. BMC dermatology, 1, 6.

<sup>6</sup> Cone, L. Gene, 2009, Minimize Heat Stress, Chilton's Industrial Safety and Hygiene News, Volume 43, Issue 4, pp 39

<sup>7</sup> Collie, S.R. and Johnson, N.A.G., 1998, The benefits of wearing wool rather than man-made fibre garments. Lincoln, Christchurch, New Zealand, WRONZ.

<sup>8</sup> Sweating and body odour symptoms & causes, Mayo Clinic. <https://www.mayoclinic.org/diseases-conditions/sweating-and-body-odor/symptoms-causes/syc-20353895> (accessed 27/11/2018)

<sup>9</sup> E. Orndorff, Space Wear Vision: Development of a Wardrobe for Life in Space Vehicles and Habitats

<https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20150004597.pdf>

<sup>10</sup> Becky Ferreira, 2015, Space Station Chic: How NASA Is Engineering Better Indoor Clothes for Astronauts. Published on Vice.com 24/06/2015. Source accessed on 18.Oct. 2019

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