

# 12



## Wool in Excellence

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Wool is not only an excellent fibre for professionals working in extreme conditions. Each of the attributes also contributes to health and wellness for everyone wearing wool in everyday situations.

### First Line of Protection

Fibre choice is a key factor that defines the performance and safety of our clothes. For many professionals and extreme athletes, clothes are an integral part of performance, improving or increasing their performance and providing necessary protection. Military services, astronauts or Formula 1 drivers all rely on the many natural attributes of wool when it comes to meet their protective clothing needs.

### Wool Ensures Endurance

For professional risk takers and extreme athletes, it is vital to be able to withstand extreme environmental conditions as well as stress over a long period of time. As a textile fibre, wool can support the endurance to perform at one's best with the following natural properties:

- Thermo and Moisture Management – Wool fibre manages heat and moisture flows providing a climate that can adjust to individual situations quickly. Wool fibres can gain or release heat and absorb or desorb moisture. This allows the body to feel comfortable in hot, cold, dry and wet conditions <sup>1,7</sup>.
- Odour reduction – Wool will absorb moisture and therefore reduce sweat on the body. This in return reduces body odour caused by sweat and its contact with any bacteria on the skin<sup>9</sup>. In addition, wool does not absorb or release existing odour volatiles resulting in less smell released from the garment<sup>2</sup>. This attribute keeps the body fresh for a longer period, a real benefit when taking a shower is not an option.
- Resilience – Wool fibres can be bent 20,000 times without breaking. In addition, wool has unique stretch and extensibility properties. This means a wool fibre can stretch more than 30% of its length without breaking and can return to its previous shape<sup>3</sup>. This makes wool garments comfortable to wear in extreme situations as it easily moves with the body while lasting longer.
- Easy Care – wool is naturally stain-repellent which prevents a wool garment from getting soiled easily. The fibre will freshen up by hanging in fresh air, which is convenient on multiple day missions or trips. If a wash is needed, short washing cycles at low temperatures are enough to clean the garment. Afterwards wool will dry quickly. This makes wool garments ideal travel companions<sup>4</sup>.



# Wool Ensures Safety



Professional risk takers and extreme sport athletes are easily exposed to severe situations, where the right type of fibre can contribute to health and safety.

- **Flammability** – the high water and nitrogen content of wool makes it naturally flame resistant. If exposed to extreme heat above 570°-600°C wool does not melt or drip to the skin, emits less smoke and toxic gases and will self-extinguish quickly. These attributes can be vital when working in risky situations involving fire or explosions<sup>5,8</sup>.
- **UV Protection** – wool offers a natural UV protection by absorbing radiation throughout the entire UV spectrum. Wool fabrics have an Ultraviolet Protection Factor (UPF) of 30+, unlike fabrics made of other fibres<sup>6</sup>. When working outside, UV radiation is omnipresent and poses a short- and long-term health risk that can be reduced significantly, by wearing wool textiles.
- **Anti-Static** – Due to wool's moisture retention properties, it is less prone to build up static electric charge. This is an important safety factor to prevent static charges as well as electrical interference during the operation of electronic equipment<sup>1,8</sup>.



## About IWTO

With a world-wide membership encompassing the wool pipeline from sheep to shop, the International Wool Textile Organisation represents the interests of the global wool trade. By facilitating research and development and maintaining textile industry standards, IWTO ensures a sustainable future for wool. To learn more about IWTO and its activities, visit [www.iwto.org](http://www.iwto.org).



<sup>1</sup>Benisek., L, Harnett., P.R. and Palin., M.J., 1987, The influence of fibre and fabric type on thermophysiological comfort, *Melliand Textilberichte* 68, pp. 878-888

<sup>2</sup>Laing, R., & Swan, P., 2016. Wool in human health and well-being. In R. Figueiro & S. Rano (Eds.), *Natural fibres: Advances in science and technology towards industrial applications*. (pp. 19-34). Dordrecht, The Netherlands: Springer.

<sup>3</sup>Wood, E., 2009, *Tangling with wool, A resource book of information and activities about wool and textiles*, AgResearch

<sup>4</sup>Laitala, Kirsi;Klepp, Ingun Grimstad, 2016. Wool wash: Technical performance and consumer habits. *Tenside Surfactants Detergents*. Vol. 53. doi: 10.3139/113.110457

<sup>5</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>6</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>7</sup>Cone, L. Gene, 2009, Minimize Heat Stress, *Chilton's Industrial Safety and Hygiene News*, Volume 43, Issue 4, pp 39

<sup>8</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>9</sup>Sweating and body odor symptoms & causes, Mayo Clinic. <https://www.mayoclinic.org/diseases-conditions/sweating-and-body-odor/symptoms-causes/syc-20353895> (accessed 27/11/2018)