

Golden Wool – A New Woollen Textile for High Value Textiles and Fashion Apparel

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We present a proprietary new technology and fine woollen textile products which innovatively utilise nanosize gold in different colours within the wool fibre as colourfast colourants, thereby linking the high value and prestige of gold with high quality merino wool, for high value textiles and fashion apparel. The technology has been developed by us over recent years. It has been progressed successfully to a small pilot scale operation with the production of demonstration textiles and is now being commercialised.

When the particle size of gold and silver are reduced to dimensions of up to a few tens of nanometres, they exhibit surface plasmon resonance effects which give rise to a variety of colours depending on the size and shape of the nanoparticles. Spherical gold particles of about 10-20 nm in size are red. As the particle size increases to about 50-70 nm, the colour progressively shifts through the visible spectrum to violet, thereby providing a range of colours.

Gold in its yellow metallic form occupies a premier position in the world economy and society representing high value and quality. Fine Merino wool commands a premier position in high quality fabrics, textiles and fashions. We have captured the exciting and unique opportunity whereby the prestige and high value of gold is linked directly to high quality wool fibre using novel nanoscience and technology to provide a new suite of gold-wool products for use in high quality fashion apparel, textiles and carpet (Figures. 1-3).

Nanogold exhibits bacterio-static anti-microbial properties as well as anti-static properties, both of which are imparted to the respective wool products. The nanogold colourants are chemically bound to the sulphur of the wool proteins in the cuticle and the fibre (Figure 4), thereby providing excellent rub fastness and wash fastness. Also, they cannot fade or denature in light, as traditional organic dyes do and hence the gold wool fabrics and textiles have excellent lightfastness.

Our novel gold-wool technology and products open up new international business opportunities in the high end market for high fashion apparel, luxury textiles and carpets. Expressions of interest are invited.



Fig 1: Merino wool yarn coloured with gold particles of difference sizes and colours



Fig 2: Merino wool scarf coloured with purple gold



Fig 3: Gold coloured carpet

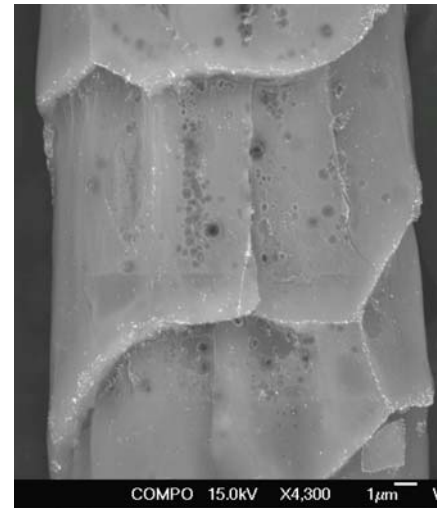


Fig 4: SEM image of nanogold particles (white dots) bound to a merino wool fibre