TECHNICAL TUESDAYS

NANOTECHNOLOGY IN TEXTILES – CONCLUDING PART

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Researches in Nanotechnology based textiles

1) SMART CLOTHES - Clothes in which the textile structures perform electronic or electric functions. It involves electronic components which have been reduced in size by means of nanotechnology being completely fused with the textile material resulting in that textile components cannot be differentiated.

2) NANO FIBRES -Textile materials made from nano fibers which can act as a filter for harmful substances. Medical staff, fire fighters, the emergency services or military personnel could all benefit from protective garments made from materials such as these. Certain nano fibers can absorb a large amount of moisture; hence textile materials are also being studied for use in agriculture.

Fig 1.1 : Nano – Textiles

Effect of Nano textiles on environment

Nanoparticles are released during washing and enter into the environment through the waste water. The particles are toxic for aquatic organisms as well as for microorganisms in the soil. Damage to the bacteria used in the biological purification of waste water in sewage plants is also expected.

Nanoparticles can be released from textiles in differing quantities and forms. Study has revealed the quantities and forms of nano particles released from different fabrics into the water whilst washing in the washing machine. It concluded that the percentage of the released particles vary considerably between individual products and is dependent on the manufacturing method.

Nano-titanium dioxide, which is used in the manufacture of nano-textiles, are considered hazardous because of its environmental impact. When water and UV exposure are present nano-titanium dioxide produces free oxygen radicals which are toxic for aquatic microorganisms. This can damage the ecological balance of stretches of water.

Wishing you a great week ahead!

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