

GROUP PRESENTATION

NANOTECHNOLOGY IN TEXTILES

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What is nanotextiles?

DEFINITION:

- > Textile: Cloth or woven fabric that is made by weaving together threads of some material.
- > The prefix nano refers to a very small size. Nanometer is one billionth of a meter.
- > Human hair -which is very thin- is 80,000 nanometers wide.

EXAMPLES:



Clothes/garments



Curtains



Furniture covers



Carpets/rugs

Why nanotextiles?





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MEDICAL FIELD

- ▶ In the medical field, antibacterial textiles is used as material for cloths as it is important to be in a bacteria-free environment to prevent infections in hospital.
- ▶ They will be needed for making the clothes for doctors/ surgeons and nurses. And they also applicable for bedsheets in clinics and hospitals.
- ▶ Garments with heartrate and temperature sensors engrained inside them can be useful for monitoring health condition.





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- ▶ The features of nanotextiles can be very crucial for people doing risky duties such as firefighters and soldiers.
- ▶ Firefighters need fireproof and heat insulating suits to stay protected from the danger of fire.
- ▶ For soldiers, they need the suits which are same properties as firefighter, and together with body armors, or bullet-proof vests.
- ▶ Soldiers may also need textiles with advanced features like improved camouflage and being embedded with micro-sensors.

CASUAL LIFESTYLE

- ▶ Nanotextile products like bags, clothes, bedsheets and couch covers will be useful when they have the features of hydrophobic.
- ▶ Curtains and rugs and other pieces of furniture which were made using fire retardant textiles, then in case of fire, these textiles will not catch fire easily.
- ▶ Wearing UV protect will reduce the risk of skin injury that may result from UV exposure.



CONCLUSION Limitations

- ▶ At least, it can be said that nanotechnology has brought higher potential to the textile industry.
- ▶ Limited research made on the side-effects of nanomaterial.
- ▶ Nanotechnology improves the quality of the fabrics and quality of the manufacturing process in the textile industry.
- ▶ Doubts and concerns regarding the effect of this technology on the environment, and our health exist.
- ▶ However, nanotextiles are not commonly used, and is mainly used for specific fields such as firefighting and military use.
- ▶ A lot of nanoparticles may end up in the skin layers of the body with continuous contact when wearing nanotextiles. The effects of these particles are still questionable.
- ▶ Further research is needed on the effects of nanomaterials on human health and environment needs to be done.
- ▶ Concern regarding the effect of the silver and titanium dioxide particles which may harm aquatic organism and damage the ecological balance.





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