



# FABRICS AND TEXTILES WITH ZINC OXIDE NANOPARTICLES WITH ANTIBACTERIAL PROPERTIES

## Ideas on utilisation

The subject of the invention is a method of applying an antibacterial coating (zinc oxide nanoparticles) to a knitted fabric or fabric in order to be able to produce textiles with antibacterial properties.

## Potential adopters of technology

The subject of the invention is a method of applying an antibacterial coating (zinc oxide nanoparticles) to a textile or a fabric in order to enable production of textile materials with antibacterial, antifungal, bactericidal and drying properties.

## Advantages of technology

The technology allows the use of a very simple repetitive method of applying zinc oxide nanoparticles to textile products and thus giving them antibacterial properties. The main benefit of the technology is the use of much cheaper material (zinc oxide nanoparticles) from silver nanoparticles to obtain a material with antibacterial (bactericidal) and anti-fungal properties. In addition, the low cost of the entire process and a simple repetitive method of synthesis that does not require the use of intermediate elements and high temperature are a big advantage.

## Market and context of technology

Textile products coated with zinc oxide nanoparticles, can be used:

- 1) In medicine, as coating for gowns, hospital linen, bandages, all kinds of materials for which antibacterial or drying properties are required.
- 2) In the textile industry for the production of clothing or textiles with antibacterial, anti-fungal properties, absorbing excessive sweat secretion and protective clothing absorbing UV radiation.
- 3) As a bactericidal agent for all types of air and water filters.
- 4) In modern electronics, as piezoelectric and semiconductor materials.
- 5) As antibacterial and drying material in panty liners or diapers for the elderly.
- 6) As intelligent materials reacting to the presence of harmful gases in the environment.
- 7) Obtained zinc oxide nanoparticles may also be used in cosmetology and pharmacy, as an addition to creams, sunscreen creams, ointments and other substances with antibacterial and drying properties

## Preconditions in adopting enterprises

Not determined