



# A METHOD FOR PRODUCING POLYACRYLONITRILE FIBRES DOPED WITH SILVER OR GOLD NANOPARTICLES

## Ideas on utilisation

Simple and low-budget technology consisting in doping at the stage of production of polyacrylonitrile fibres with silver or gold nanoparticles, in order to obtain a textile material with antibacterial properties.

## Potential adopters of technology

The subject of the invention is a method for producing polyacrylonitrile fibres doped with silver or gold nanoparticles. The production of doped fibres consists in the precipitation of nanoparticles directly in the polymer mass from which the fibres are produced. Thanks to this solution, the nanoparticles are well dispersed and fixed in the fibre volume, as a result of which during the process of use (e.g. washing, drying) the nanoparticles are not removed from the material into the environment.

## Advantages of technology

The technology allows the use of a simple, repeatable method of producing polyacrylonitrile fibres doped with silver or gold nanoparticles, which allows for obtaining fibres with very good antibacterial properties. The big advantage is the low cost of the entire process and a simple, repeatable production method.

## Market and context of technology

Polyacrylonitrile fibres doped with gold or silver nanoparticles may have the following applications:

- 1) In medicine for the production of gowns, hospital linen, bandages, all kinds of materials for which antibacterial properties are required.
- 2) In the textile industry for the production of clothing or textiles with antibacterial properties, e.g. for the production of specialised clothing for people with atopic dermatitis, mycosis.

## Preconditions in adopting enterprises

Not determined