



NANO SILVER TECHNOLOGY

HANVICO 2020



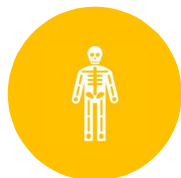
INTRODUCTION



Nano silver
technology



Application of nano
silver technology



Hanvico monopolizes
nano silver antibacterial
cotton



Hanvico facemask using
antibacterial cotton



USES OF SILVER

- ❖ A long time ago, silver was used to detect poison factor and kill bacteria.
- ❖ The Vietnamese experience has it that silver is wind-resistant.
- ❖ Silver is applied in many fields related to human health: silver paper containers of fresh milk for longer preservation, textile technology, blanket, pillow, cushion... using silver for support antibacterial efficiency.



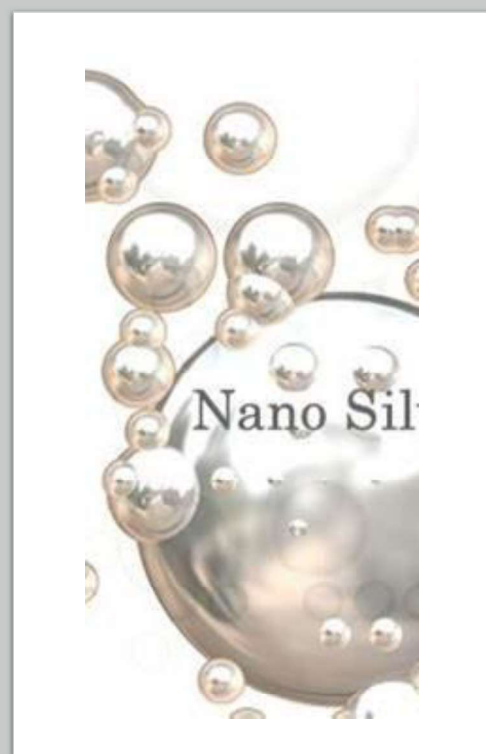
WHAT IS NANO SILVER ?

Nano silver has the size from 1-100 nanometers. Typically, the size is about 25 nanometers.

Nano silver particles have big surfaces helping to increase their interactions with bacteria or fungi, maximizing the capacity, and immediately kill bacteria after exposure.

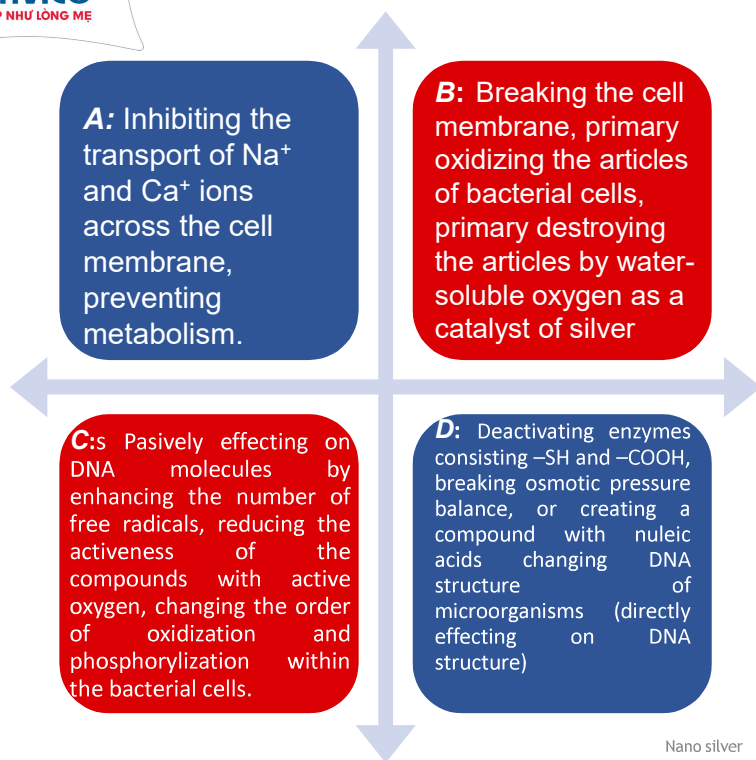
Nano silver technology helps to against the stickiness of the silver molecules by covering the surface of the molecules. Silver molecules in Nano format are extremely stable.

Nano silver



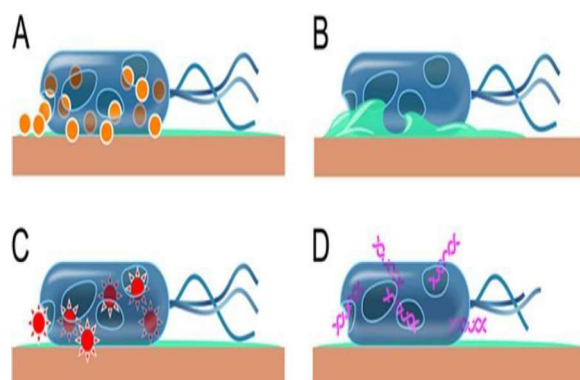
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Nano silver

ANTI-BACTERIAL MECHANISM





Silver ion Ag^+ links with DNA – bases - bacteria

ANTI-BACTERIAL MECHANISM IN BIOLOGICAL PERSPECTIVE

Nano silver destroys pulmonary function.

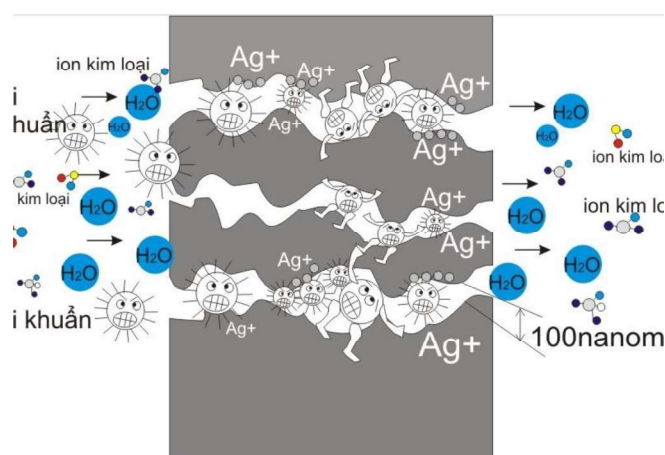
Nano silver destroys the function of the cell membrane.

Nano silver links with DNA of microorganism cells and inhibits the replication functions, keeping them from overgrowing.



EXCELLENT ADVANTAGES OF THE SILVER

- Ability to kill more than 650 types of bacteria, 260 types of harmful microbes, gram-negative and gram-positive bacteria
- Safe and hardly cause poison
- Fast effectiveness, no irritation, no allergy
- Create no harmful color or odor
- Stable characteristic and long-lasting anti-bacterial effect
- Flexible application





APPLICATIONS OF NANO SILVER TECHNOLOGY

Daily application

- Sterilize
- Eliminate odor
- Used in health-care products

In agriculture

- Kill bacteria
- Remove fungus

In textiles

- Clothing
- Blanket & pillow
- Mattress
- Medical tools



HANVICO'S ANTI- BACTERIAL NANO SILVER COTTON

- ❖ Nano silver antibacterial cotton exclusively distributed by Hanvico in Vietnam is provided by the manufacturer Toray Chemical INC - Japan & Korea.
- ❖ Toray Chemical is the leading manufacturer of fibers and compounds for the textiles and digital appliance sector in the Asia and for many big corporations all over the world.
- ❖ Toray Chemical has excellent capacity by applying advanced science and technology with deep investment into the research and development the characteristics of man-made fibers.
- ❖ Polyester staple fiber applies Nano Silver edge-cutting technology on fibers with the size of 15D*51mm with blue or pink hole and 7D*51mm solid and silicone coated in blue and pink colors.



HANVICO'S ANTI- BACTERIAL NANO SILVER COTTON

The production technology and the final products of Nano silver fibers exclusively distributed by Hanvico in Vietnam are certified with the certificates issued by international organizations: FDA (US), Oeko_Tex100 (Germany), Fiti (Japanese), KSA (Korea), and Vietnam Textile Research Institute (Vietnam).

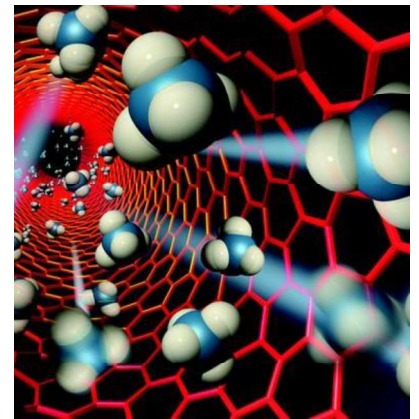
Proven results: kill over 93% of bacteria, hence minimizing the smell and certified to be friendly to use by FDA - Administration Food and Drug Administration.

For many years, Hanvico has been using Nano silver cotton to produce various products sold in the market such as Blanket - Bedsheet - Pillow - Mattress (core section), increasing the safety and health protection for the consumers.

ANTI-BACTERIA AND KILL BACTERIA

Anti-bacterial function is the process of resisting bacteria and killing emerging bacteria. When bacteria are killed, there will be no odor.

Bacteria killing is the action of concentrating and acting at one certain time when applying the bacteria killing action, such as spraying chemicals or disinfectants to kill bacteria.





CERTIFICATES OF HANVICO'S NANO SILVER COTTON



- Certificates for HANVICO's Nano silver fiber include:
- Certificate of exclusive development of Nano silver fiber product - Freshever in Vietnam issued by Toray Chemical INC.
- Certificate of killing bacteria for fiber - Freshever - Nano silver issued by Oeko Tex 100 – Germany.
- Certificate of quality issued by KSA - Korea.
- Certificate of antibacterial function for Nano silver fiber - Freshever issued by FITI – Japan.
- Certificate of safe and friendly usage for Nano silver fiber issued by FDA – America.
- Certificate of antibacterial function of over 93% for Nano silver fiber issued by Vietnam Textile Research Institute
- Certificate of antibacterial function for facemask issued by Vietnam Textile Research Institute.

FRESHEVER FACEMASK



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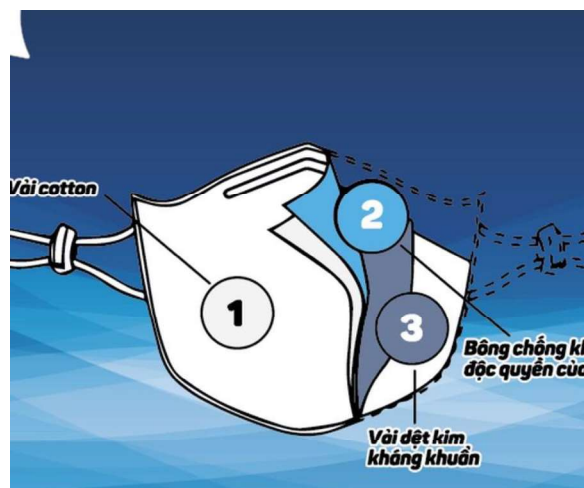
Nano silver

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FRESHEVER FACEMASK

- ❖ Upper layer – the first layer of protection against dust and other environment factors - Made by 100% cotton with concentration from 200 to 400 fibers/ square inch, bleached and dyed with high quality chemicals with friendly and safe colors, and anti-bacterial processed before sewed.
- ❖ Middle layer – the antibacterial nano silver cotton layer – important layer, having antibacterial function of over 93% in accordance with the statement (attached) with the function of killing more than 650 types of bacteria and is odor-resistant. Remaining the anti-bacterial function with 30 times of wash by warm water of 40-60 degree C.
- ❖ Lower layer – knitted TC cotton, this is the layer with direct skin contact. The fabric is anti-bacterial processed before sewed.





NANO SILVER FACEMASK

*The structure of Nano silver
facemask consists of 3 layers,
similar to that of Freshever*





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