www.aquafilter.com

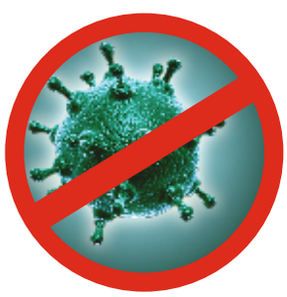
The Clear Choice
Water Filtration Systems

BACinix™

General information

BACINIX™ antibacterial

Bacinix nanosilver technology protects you and your family from bacteria growth!



1. Enzyme disruption
Silver ions binds with various enzymes disrupting metabolic processes.

2. Cell membrane disruption
Silver ions penetrate the bacterial cell wall and lysis of the cell membrane.

3. DNA damage
Silver ions bind to DNA. This prevents two strands from separation and thus cell replication.

4. Ribosome denaturation
Binding with ribosomes prevents from protein synthesis and results in degradation of the plasma membrane.

Innovative BACinix™
Bacteriostatic Nanosilver Technology

According to the World Health Organisation (WHO) consumption of biologically contaminated water is responsible for 2,2 million diarrheal disease deaths around the world each year (some sources claim that it is approximately 3,4 millions). Most of these are children under 5 year of age.

According to the World Health Organisation (WHO) biologically contaminated water is the main reason for death among population. Consumption of such water is responsible for 2,2 million diarrheal disease deaths around the world each year (some sources claim that it is approximately 3,4 millions). Most of these are children under 5 year of age. This problem is mostly noticed in third world countries, suffering from overpopulation.

Recent progress in science allowed the development of many substances and methods, which may help in struggle against pathogens and stop these terrifying statistics. Unfortunatelly we are unable to use these methods every time we want. Moreover pathogens can quickly evolve and develop resistance to these biocydes. This situation lead to the development of totally new microbiologically active agent. Solution came from unexpected side – nanotechnology and its rapid development during last years.
Nanotechnology is a branch of science which deals with studying and developing various srtuctures with nanometric sizes (hardly larger that the dimensions of a single atom or particle). These structures cannot be seen with a naked eye. They can only be seen using sophisticated microscopes. The term “nano” can be attributed to the size of these structures. Nanometer is one billion (10-9) of meter. For example the diameter of a human hair is 17-180 micrometers which equals 17000 to 180000 nanometers.
A combination of this branch of science with a knowledge about microbiologically active substances has led to the development of totally new substance – silver nanoparticles.

Antibacterial properties of silver were known in antiquity. Even the father of a modern medicine – Hippocrates, referred about its beneficial properties. Silver as a bactericidal agent was used to the middle 30's of XX century, when penicillin was dioscovered. Fot the next several decades silver as a antimicrobial agent was forgotten. The change in point of view occured, when the newest generations of antibiotics were ineffective against pathogens.
Recently many products contains silver nanoparticles. Nanosilver has many advantages. In contrast to commonly used antibiotics, pathogens cannot develop resistatnce against it. It is biocompatibile (well tolerated by hyman organism) and causes no immune response.

Nanosilver is so effective because its mechanism of action involves simultaneous attack on the pathogen in several different places:

Nanosilver is so effective because it simultaneously attacks pathogens in several routes:
1. Nanosilver attacks bacteria cell walls – they are composed of aminoacids. Silver nanoparticles change their structure (create disulfide bridges between aminoacids). It disrupts so called respiration chain. Bacteria losses its ability to gaseous exchange (breathe) which lead to its death.
2. Nanosilver can penetrate cell wall leading to immediate death of bacterial cell.
3. Nanosilver enters inside the bacteria and binds with its DNA. It prevents two strands from separation and thus stops DNA replication. Unfortunatelly the detail mechanism of this action is still not well known and requires further studies.
4. Nanosilver after passing to the inside of the cell binds with various ensymes. Disruption of metabolic processes prevents cell growth.

AQUAFILTER BACinix™ bacteriostatic technology prevents from microbiological growth of bacteria, both gram-positive (e.g. S. aureus) and gram-negative (e.g. E. coli, Legionella).

Bacteriostatic properties of filters and filter elements enriched with **BACinix™** nanosilver technology were confirmed during independent laboratory tests. The samples were tested against E. coli and S. aureus according to most commonly used Japanese standard:

JIS Z 2801:2000 – Antimicrobial products – Tests for antimicrobial activity and efficacy

An active agent is added during the manufacturing process, thus it is dispersed evenly throughout the entire cartridge. This in turn increases hygienic properties and can reduce odor and inhibits pathogen growth.
Utilization of nanosilver in both filters and filter housings gives you and your love ones additional protection against waterborne pathogens and the diseases they cause.

An active agent used in our products ensures low risk of bacterial resistance, no problem with migration/leaching. It is also compliant with EPA – FIFRA (USA) and the new European BPD regulations.

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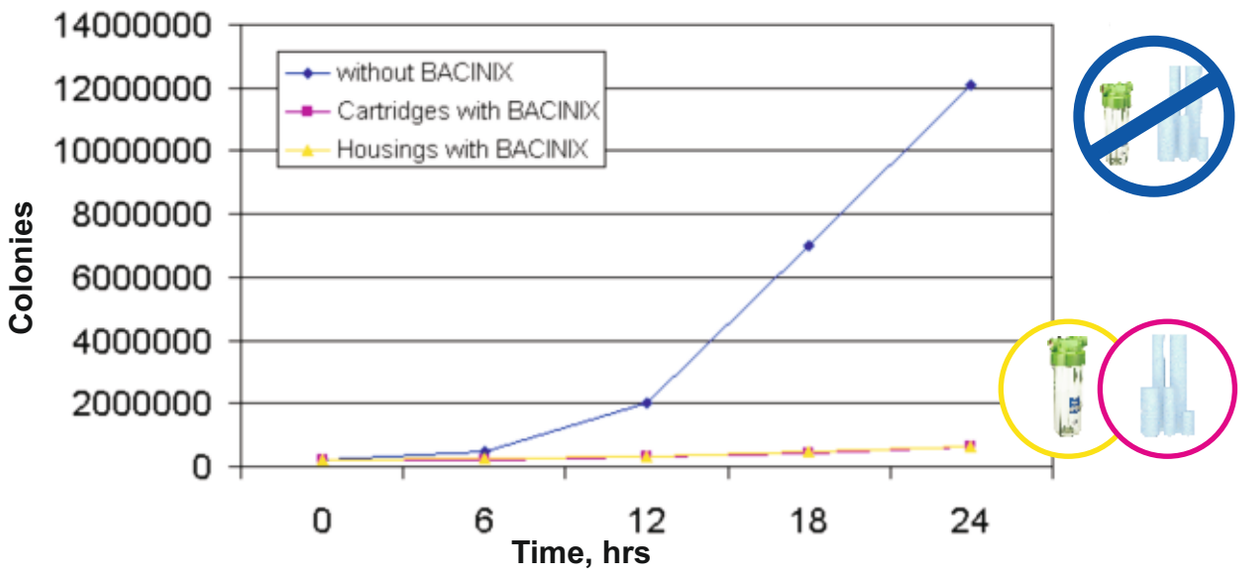
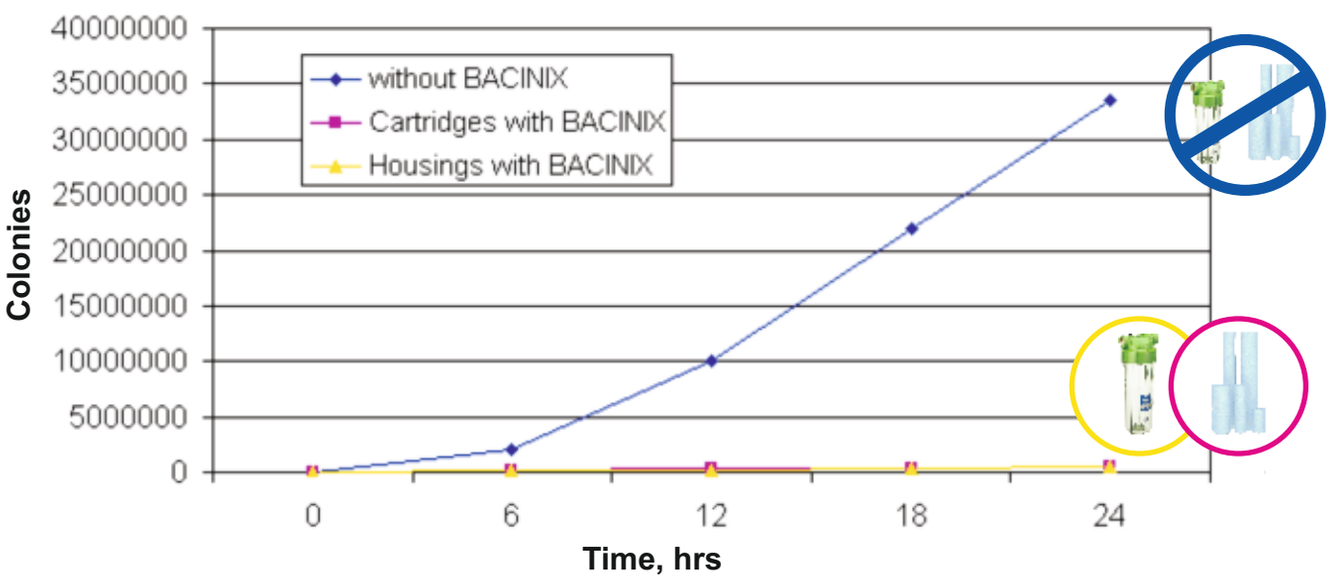
Made in EU

Antimicrobial tests were performed in the independent laboratory (University of Lodz) against E.coli and S. aureus according to JIS Z 2801:2000 - Antimicrobial products - Tests for antimicrobial activity and efficacy.

E.Coli



S. Aureus



The results clearly shows that without **BACinix™** nanosilver technology we can observe signifficant growth of bacterial colonies. Addition of **BACinix™** nanosilver technology inhibits pathogen growth.

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