



Biocidas Biodegradables ZIX

**Aquazix**®

Success is climbing up the rungs of a ladder  
We know, because we have gone up one by one

**New Nucleus**  
**ENTEROZIX**®

Much better and more than a Peroxide  
Aquazix eliminates 90% of diarrhoeas  
New formula with Colloidal Silver

# Stabilisation of hydrogen peroxides

Peroxides are thermodynamically extremely unstable products and highly sensitive to temperature, light, metals, minerals and, especially, organic material

## Stability: Aquazix excipient

Contains stabilising substances based on anionic surface-acting and chelating agents that catalyse the reaction of peroxide and peroxyacid decomposition, making it into a slower decomposition, even in the presence of natural decomposition catalysers in water, such as minerals, metals, organic materials and digestive mucous. This also prolongs its microbicide activity when ingested. Aquazix is:

**Very stable in the container**

Remains 98% stable over 3 years

Highly stable when dosed into water systems

## Seguridad

Does not react to other peroxides

Very rapid decomposition of peroxides causes problems with irritation in the mucous membranes, or even burns. Overdoses of Aquazix will not cause burns or ulcers in the stomach and small intestine, and will not alter the natural flora, nor the condition of the mucous membranes in the gastro-intestinal tract

## Biocide Efficiency

Increases the amount of contact time, and improves biocide efficiency in water systems

Aquazix has an adhesive substance in its excipients. This promotes greater adherence to the internal surfaces of pipes by increasing contact time with these, acting in a shorter time at lower dosage and providing a greater microbicide action





## Combats Salmonella efficiently

Aquazix makes it difficult for Salmonella to be implanted and grow in the intestine. When hens are with Salmonella enteritidis in the beak, Aquazix prevents it from becoming implanted in the gastro-intestinal apparatus on 73% of occasions

## Prevents clostridia from developing in the intestine

Aquazix helps to prevent the growth of anaerobic Gram + flora: Clostridium spp.

## Helps to prevent the growth of coliforms

Aquazix creates unfavourable conditions for the Enterobacteria Gram pathogenic flora

## Reduces duodenal ulcers

In situ biocide and epulotic efficiency, against Lawsonia spp.

## Reduces the activity of coccidia and cryptosporidea

At high doses, it reduces viable coccidia and cryptosporidea by hindering infestation. Reduces droppings in the environment and faecal oral recontamination

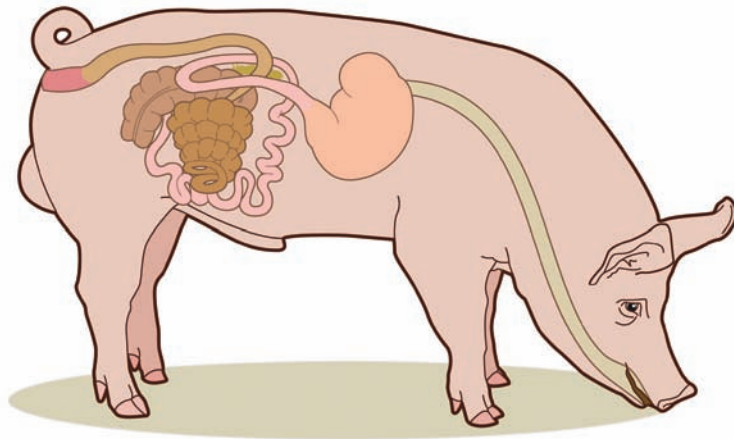
## Reduces the use of pharmacological cures

Improves the balance and functioning of the digestive apparatus and reduces digestive diseases



**90% reduction in digestive problems**  
**Improves production: ADG and CR**

# How does Aquazix solve digestive problems ?



The Aquazix formula, the result of our success:

Hydrogen peroxide

+

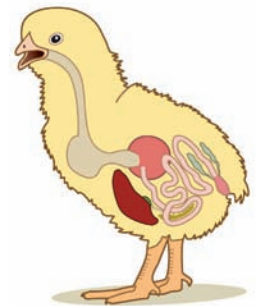
Silver

+

Peroxyacids

+

Enterozix nucleus ®



## Hydrogen peroxide

Hydrogen peroxide is naturally present in milk and honey. It is also found in tissues, the mouth, mucous membranes, etc., as a result of cellular metabolism through reduction of oxygen.

Hydrogen peroxide is a biocide belonging to the oxidant family. It is extremely reactive to organic material.

Action mechanism: it frees hydroxyl radicals which act as powerful oxidants from the sulfhydryl groups and double bonds of the proteins, lipids, enzymes and surfaces of the membranes on the micro-organisms, attacking the DNA

# “Talking of silver”

The microbicide properties of silver have been well-known since ancient times. Silver is naturally present in the earth at an average amount of 0.1 ppm, and in sea water in amounts of 0.01 ppm. Nowadays, it is used in any number of formulae for medical and health purposes, swimming pools, water treatment in hospitals, toothbrushes, band aids with silver, burns, refrigerators and to treat water

## COLLOIDAL SILVER

The silver contained in Aquazix Plus is in colloidal form, which is a type of ionic silver. Colloidal silver, combined with albuminoid acids, is the chemical form with the highest biocide efficiency and the greatest synergy with hydrogen peroxide.

### It is efficacious in very small doses

### Action mechanism

It depolarises the cell membrane and bonds with the DNA in micro-organisms, increasing their fragility and allowing greater permeability, with the passage of silver ions to the inside of the bacteria. It inhibits protein synthesis and precipitates bacterial proteins. It interferes with the transport of electrons in the respiratory chain in two places, first affecting cytochromes B and D, and second, affecting the entry point of the substrate in the respiratory chain (regions of flavoprotein substrate, nicotinamide, adenine dinucleotide hydrogenase and dehydrogenated succinate ). Silver in ionic form inhibits the oxygenation of glucose, glycerol, fumarate, succinate and lactate. It interferes in energy reaction in the respiratory chain and in the reproduction of bacterial DNA.

### Synergy of Colloidal Silver with Hydrogen Peroxide

The biocide efficiency of colloidal silver mixes with hydrogen peroxide is much higher than that produced by each one separately: from 50 to 100 times greater. Silver in ionic form is a catalyst for the formation of hydroxyl radicals, increasing the phenol coefficient of the hydrogen peroxide to combat *Escherichia coli* and *Staphylococcus aureus* by 100 times more strongly. Silver improves the bactericide action of the hydrogen peroxide, as the silver ion promotes oxidation of free radicals in organic peroxyacids. Ionic silver, together with hydrogen peroxide, increases the rupture rate of peptide connectors in bacteria. The synergistic effects of both can be proved by a DNA plasmid test, where the hydrogen peroxide alone does not break the DNA; however, the combination of peroxide with silver ion does break the DNA more strongly, and, therefore, inhibits bacteria. The same occurs with the Virucide effect. This is due to a higher production of free radicals which attack the virus DNA. This combination is a 50-times stronger virucide than glutaraldehyde used over the same contact time and in the same quantities of active ingredient.

# Organic peroxyacids

These belong to the peroxide family. They may be inorganic or organic. They have the same action mechanism as peroxides. The inorganic ones do not have such high tolerance when they are ingested due to their dissociating faster. Aquazix contains a small amount of two organic peroxyacids. There is a strong synergy with hydrogen peroxide, as they promote a general biocide action, mainly against non-sporeforming germs.



## Enterozix nucleus<sup>®</sup>

The Enterozix nucleus is an own-brand, protected technology and formula  
Its ingredients act effectively on the gastro-intestinal apparatus:

### Composition

Two pre-biotics: fructooligosaccharides. Protects the coating of the intestinal mucous membrane. A natural epulotic for ulcers and small microlesions. A natural astringent. A stimulant for the protein metabolism. A natural microbicide of essential oil

### Prebiotics: Promote balanced intestines

Enterozix Nucleus contains two fructooligosaccharide prebiotics with citrus extracts and citrus seeds which promote the balance of the intestinal flora, and reduce the ideal conditions for the multiplication of pathogenic flora: salmonella, coliforms, clostridia

### Protects the coating on the digestive mucous membrane

Creates a barrier to protect the intestinal microvillus, to promote its good condition and normal functioning

### Natural epulotic for ulcers and small microlesions

### Natural astringent

Creates a barrier to protect the intestinal microvillus, to promote its good condition and normal functioning

### Stimulates the protein metabolism

Helps to improve production yields through better growth

### Natural Microbicide of essential oil

Efficient intestinal bactericide at extremely small doses. Acts in the gastro-intestinal apparatus against salmonella, coliforms, clostridia



# Law and Efficacy

“Safe use of biocides. Always read the label and product information before use”.

BBZIX is registered with:

MAPA: Additives for Animal Food: 1122 / 00002

MAPA: Animal health products for Hygiene HCM - 0102

MISACO: Official Registry of Pesticide Establishment and Services 22 / 00043 / S

In accordance with:

Royal Decree 140 / 2003 on Water for Public Consumption

Water Planning, 21 November 2005:

Food-grade hydrogen peroxide, complying with standard UNE EN 902

Official regulations on efficacy: UNE:

It easily surpasses the requirements demanded by UNE standards on antiseptics and disinfectants:

Complies with UNE-EN 1276 standards: *Escherichia coli*, *Pseudomona aeruginosa*, *Enterococcus hirae* and *Staphylococcus aureus*. Under clean conditions for the brewing industry. Chemical antiseptics and disinfectants. Quantitative suspension test for the evaluation of the bactericidal activity of chemical antiseptics and disinfectants used in food products, in industry, in the home and in public

Complies with UNE-EN 1650 standards: *Candida albicans* and *Aspergillus niger*. Under clean conditions for the brewing industry. Chemical antiseptics and disinfectants. Quantitative suspension test for the evaluation of the fungicidal activity of chemical antiseptics and disinfectants used in food products, in industry, in the home and in public

Complies with UNE-EN 13697 standards

Biocidal Products Directive BPD: Commission Regulations 2032 / 2003

Parliamentary Regulations 1907 / 2006

REACH: Research Evaluation Authorization of Chemical Products

European Chemical Codex: Quality of raw materials



Biocidas Biodegradables ZIX

Biocidas Biodegradables ZIX S.L. Pasaje Baleares 4, Oficina 1 22004 Huesca (Spain)  
+34 974 230 381 Tel: +34 670 210 100 Fax: +34 974 218 751 bbzix@bbzix.com www.bbzix.com