



We only harm the microbes

Scientific and production enterprise
IZUMRUD, Saint-Petersburg



We are from Russia.

Producing, developing and researching since 1998

Have patents for inventions, including international patents, all products are certified

More than 10 research projects completed in cooperation with leading research institutes in Russia

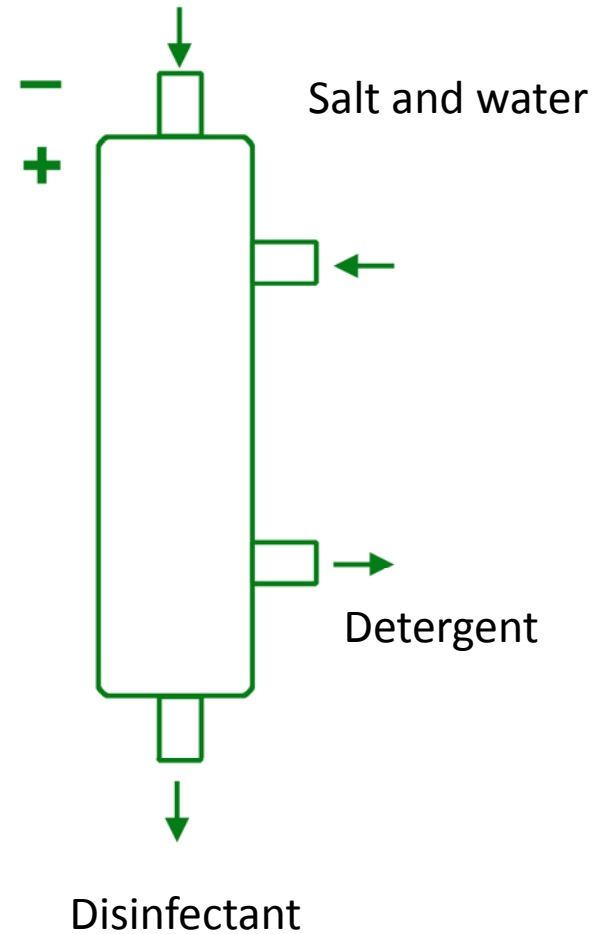
Selling to private and public clients in Russia and exporting in more than 10 countries of the world

Subsidiary company in the technology park of Girona (Spain)



We disinfect with salty water,

SPE Izumrud develops and commercializes the technology to produce eco disinfectants and detergents from common salt and water - **ECAS**



being friendly to people and nature,

- ECAS solutions are harmless for people or animals: they wash, disinfect, but don't irritate
- After the use the solutions degrade to what they were – salt and water
- ECAS solutions don't create by-products
- We don't use any chemicals: nothing but salt and water



During a toxicity test our disinfectant (600 ppm) was introduced to an egg, and as a result it **did not impede** to the embryo development (All-Russian Institute of Poultry, 14.03.2006)

...but aggressive to microbes

- ECAS solutions eliminate all types of microorganisms: bacteria, virus, fungi, spores
- During 20 years of use and research there were no cases of microbial immunity
- ECAS solutions remove sources of contamination, like biofoaling in the pipes

Legionella, Acinetobacter baumannii, Escherichia coli (O157), Enterococcus species (VRE), Helicobacter pylori, Listeria, Mycobacterium avium-

intracellulare, **HIV-1**,

Mycobacterium bovis (TB), Mycobacterium chelonae, Mycobacterium terrae, Mycobacterium tuberculosis (TB), Mycobacterium xenopi, Mycobacterium

smegmatis, **Aspergillus**

niger, Pseudomonas aeruginosa, Staphylococcus aureus (MRSA), Samonella cholerasuis, Adenovirus type 4,

Bacteriophage MS2, **Hepatitis** Herpes virus type 1, Human and Animal

Influenza (including **H5N1** Avian Influenza and H1N1 Swine Influenza), MS2 virus, Human Norovirus (Norwalk), Murine Norovirus, Orthopoxvirus, Poliovirus type 1, Poliovirus type 2.....

Many sectors are disinfecting green

Because ECAS solutions are cheaper than any other chemicals, and they are produced on-site



...by buying these products made by us,

AQUAECA solution

- Highly efficient against all the micro flora
- No bacterial resistance
- Non-toxic and safe for animal and people

AQUAECA devices

- Producing disinfectants and detergents from water and salt
- Productivity – from 40 to 1000 liters per hour
- Easy production on-site with 0,01kWh per liter

International patents

PCT WO/2009/105046 | PCT WO/2009/070056

PCT WO/2007/046730 | PCT WO/2006/043853



...taking them to these countries



Germany



France



Holland



Slovakia



Poland



Spain



Italy



Latvia



Ukraine



Russia



South Africa



Malaysia



Taiwan



Australia



Singapore



Israel



Canada



India



Mexico



Colombia

While we are making some research

- Impact of ECAS water on mice by oral infection of *Salmonella* *tiphymurium* (2008).
- Struggle against mastitis of cows and improvement of milk quality (2008-2010).
- Disinfection of premises by the African plague of pigs (2007).
- Impact of AQUAECA™ on ectoparasites of birds, (2009).
- Influence of the solution AQUAECA (anolyte) on the virus infection H5N3 and the influence of this solution on the development of the chicken embryo (2006).
- Conduct of the tests of planned capacity of Izumrud™-500-P6 machine for production of antioxidant water (2006-2007).
- Impact of the activated water on the characteristics of bread and disinfection in bread industry (2011)
- Fungicidal and bactericidal properties of Aquaeca according to EU norms (2011)

Thank you



IZUMRUD®



AQUAECA

sal • aqua • energía

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