Fish Farming

Benefits of using magnetic treatment in Fish Farming.

In order to increase productivity, a study on the effect of magnetic fields was carried out. Magnetic systems were used to create magnetic field of 40kA/m, MM30-40 with 1 and 2 inch diameters and capacity 1m/sec.

Magnetic treatment of water had a favorable effect on fish and enabled for an oxygen content increase in water by up to 5g/l. Also had a positive effect against pathogenic bacteria in water, thus reducing disease in fish.

Conditions	Gained weight, %	O2 in water	Fish mortality, %	Fish morbidity, %
Water without magnetic treatment	100	1	36	60
Water with magnetic treatment	155	4.4	28	30
Feed with magnetic treatment	188	4.2	12	0
Water and feed with magn.treatment	155	4.8	12	25
Water, feed and sh with magnetic treatment	220	5.4	8	0

Results of magnetic treatment:

Therefore it is highly beneficial to systematically magnetize water-feed-fish as a whole. As a result of this method, weight gain of fish more than doubles without any additional expenses.

Technology of magnetic treatment with closed loop water supply.

Treatment of natural and waste waters.

The latest technology of water disinfection of domestic and industrial effluents, was created on the basis of conversion developments using hydrodynamic magnetic resonance effect, ultraviolet light, ultrasound and acoustic vibrations to achieve complete destruction of pathogenic organisms.

These physical factors act simultaneously in one unit of "Edelweiss-M" system.
EDELWEISS Technology is unique. Its main advantages are:

- Small footprint
- Little time for complete treatment
- Low energy costs
- No chemicals
- Fully automated

Operation and main characteristics

There are three physical methods of influence of the treated water - hydrodynamic magnetic resonance, ultrasonic cavitation and ultraviolet radiation. These provide almost complete disinfection of water. Resonant destruction of cell membranes in a magnetic field, high temperature and pressure in the cavitation zone, and photochemical oxidation, cause devastating effects on bacteria, viruses and microorganisms.

1. Use of magnetic hydrodynamic resonators (using permanent magnets) enables to:

- Significantly reduce energy costs for decontamination of natural water and wastewater by ultrasonic cavitation and ultraviolet treatment
- Ensure the structuring of the treated water and enriching it with biologically active properties

2. During a simultaneous exposure by a magnetic hydrodynamic resonance, ultraviolet radiation, ultrasound and acoustic oscillations of the aquatic environment, creates powerful4 oxidizing agents, uniformly distributed over the treated volume. This enhancing the efficiency of the system by 103 times and completely destroys (full photochemical oxidation) any shape (in including spores see. Table 3), microorganisms, viruses and protozoans (see Table 4) at concentrations up to 106 U / l. Conventional UV technology (exposure time inside a system of no more than 1.5 sec), and also on large productions - ozonation, are not able to suppress these types of microorganisms. The effect in conventional technologies of UV and ozonation is achieved at very low concentrations (units in 1 liter) of spores and protozoa with prolonged exposure, and almost does not eliminate mold.

3. The difference of UV treatment of water using proposed technology is in as a short-wavelength (253.7 nm) and vacuum ultraviolet light (185 nm), enabling almost complete disinfection (up to 99.999%), killing of bacteria (see Table 1) and viruses (See Table 2). The results are far better than using conventional technologies that use long wavelength ultraviolet range and oxidation with ozone. Also its energy intensity is 3-4 times higher than that of EDELWEISS technology.

4. The technology enables, directly in a flow, to disinfect sludge pulp, and 100% kill worm eggs. Obtained at the output water carries fertile silt a complex fertilizer, which is composed of organic compounds as well as a wide range of inorganic components, including trace elements. Using sand filter at the output helps to separate silt. Which can be used as a high quality complex fertilizer immediately after drainage (water removal) and drying. There is no need for lengthy and expensive stages of biological or natural decontamination. Chemical and bacteriological analysis confirmed the ecological purity and high efficiency of this type of fertilizer. It is cheap and can be a profitable business.

5. EDELWEISS is not subjected to bio-formations and solarization.

6. The energy cost for wastewater treatment is not higher than 0.02 kWh/m3 (excluding power pumps).