

Advanced Energy Transfer

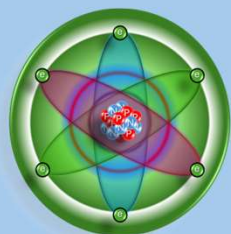
Discover Waters True Potential

By Palm Beach Springs Water Company

Short Introduction to HAB's Mitigation and Control Featuring

ElectroLIFE
Industrial Watertreatment





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Overview: AET Mitigation & Control Hazardous Algae Blooms (HABs)



Summary: Advanced Energy Transfer (AET) is an electrochemistry method for the mitigation and control of hazardous algae blooms (HAB's), using combinations of processes for sensitive ecological environments.

Statement of the problem : Surface waters, throughout the planet are experiencing increasing HAB's driven by excess run-off of environmental contamination. These HABs are dangerous to all organic life. The total cost to the State and local communities is substantial, closings of public areas, restrictions on recreational activities, impact to the environment, and human health risks.

Failure upon failure of concept solutions : One popular concept suggests using atmospheric oxygen to ozone generators aka Nano Bubble Ozone Technologies (NBOT). This system has proven to weak for the environment it must control. The concept is driven by a single factor, safety for the environment. Unfortunately, NBOT is so safe it is not reasonably effective

Understanding ozone gas created in a synthetic natural process is agreed as best, lets make the synthetic organic green ozone gas from the surface water by splitting H_2O and then use the same water to redeliver as dissolved ROS.

AET methods use the source water to create the perfect environment for maintaining water. It is agreed, using natural ROS gases are the best overall control. We understand when delivering infused concentrated gas, into unbalanced warm, basic, and organic loaded surface water it can not work. We all understand the main problem, air and water do not mix well.

We can understand splitting H_2O , dissolving the ROS gas as a single bubble, dissolved within a molecule of H_2O would be the perfect delivery although this process to most is unknown.

Using Advanced High Amp Dual Polarity Electrochemistry in specialized "Neutral" variations is this process, the only technology compatible to a natural neutral sensitive environment with no content added and no negative impacts.

ElectroLIFE

Industrial Watertreatment

ElectroLIFE produces ozone by splitting H^2O , not oxygen from the atmosphere. This is the foundation of compatibility as an H^2O delivery medium.

Electronically splitting H^2O from the source water while oxidizing cations creates multi-Reactive Oxygen Species gases (ROS) including Ozone (O^3), Chlorine (Cl^2) and Hydrogen Peroxide (H^2O^2). The gases are produced as single bubble, dissolved in a single molecule of H^2O , insulated for stabilization by 6.45 Ionic Product (IP).

ElectroLIFE uniquely produces OH^- in the same space, this allows for the stabilization of all gases. This is like producing OCl^- although as the gases are dissolved and isolated, they can store together compatibly in a positive dominant environment for delivery. (*This is only a comparison of storing and releasing ROS gases by pH.*)

As equal opposites, now reducing anions creates OH^- and Hydrogen gas. The offset between the 2 is responsible for the total stabilization and storage of gases as dissolved and controlled by polarity dominance, (*equal to 6.8 pH*) for synthetic manufactured ROS release from the OH^- hold. (*Similar to OCl^- release as $HOCl$ in actions*).

6.45 Ionic Product stabilizes molecule separation eliminating the Vander Waals Force and maximizes Brownian Motion, both important for stabilization of ROS half-life and mass gas transfer eliminating the dependency on water temperature. The foundation of compatible delivery would suggest water is soluble in water, concentrated air is not, dissolved gas in water is therefore now soluble in water.

This process continues 24/7/365 in independent circulation contributing an infinite although metered to need volume of dissolved gases.

In conclusion: ElectroLIFE uses the source water to clean the source water. Nothing is added to the water only taken out and or neutralized. The environment is boosted for recovery naturally only using the source itself. Decades of proven performance in the harshest water conditions prove the strength to do the task. Dual polarity electrochemistry for the required sensitivity to the environmental need. Nothing is more compatible or soluble in water than water itself. Nothing is more stable than balanced dissolved gases in water treatment. Nothing is more powerful than Advance High Amp Dual Polarity Electrochemistry for water treatment.

Carbon / CO^2 Emissions Reductions : ElectroLIFE as a continuous circulation of oxidation followed by reduction eliminates atmospheric and aquatic carbon by oxidizing carbon to CO^2 , then the CO^2 is reduced to Oxygen on its ultimate destination to H^2O .



Enhanced mixing and circulating gases into loaded surface water aiding in the prevention of build-up throughout the delivery system

Loaded surface waters are not compatible with delivery systems. Prefiltration is used to lower the Total Suspended Solids (TSS) which causes clogging.

SpiroFlo is a device which creates a vortex utilizing the principles of “toroidal flow” for its power and benefits in this unique delivery where filtration is not reasonable although the water must keep moving uninterrupted and in a stabilized flow.

SpiroFlo is a patented tool engineered to organize flows of heavily loaded water, in a controlled delivery system.

Advantages to loaded raw surface waters HAB treatment include separating high viscosity (a measure of a fluid's resistance to flow) water combined with TSS from lesser water. The higher the viscosity the stronger the movement to the outside of the vortex where the low-pressure edge of the vortex creates a swirling effect preventing the build up of materials.

Operational Benefits with SpiroFlo include:

Reduced Clogging and Blockages: Delivery systems for HAB treatments can face issues with clogging and blockages due to the buildup of TSS. The vortex flow aids in the movement of TSS from raw surface water in operations such as this where filtration is not reasonable and/or not used.

Mixing Gases: SpiroFlo tools enhance mixing efficiency by creating turbulent flow, enhancing the utilization of gases through out the delivery system.

Lower Pressures and Improved Efficiencies: Delivery systems may consume excessive energy to overcome resistance or friction caused by pipe fouling from sediment. By preventing energy consuming clogging, SpiroFlo contributes to the overall energy efficiency.

Maintenance Free: Delivery systems can require maintenance and cleaning due to blockages of TSS over time. The innovative SpiroFlo design is self-cleaning preventing clogging build-ups, reducing maintenance, minimizing downtime and decreasing operational expenses.



Complete Hazard Protection with chlorOrgano :

chlor *Organo* is a non-regulated preventive control eliminating the need for industrial pesticides in environmentally sensitive areas.

chlor *Organo* NaOC⁻ Concentrate treats large volumes of water with a finished concentrated product like OCl⁻ without the pesticide hazards.

The differences are; OCl⁻ Concentrate is an EPA Regulated Pesticide industrial solution and is classified as dangerous to all organics. Cl² in tandem with OH⁻ dissolve organics (EPA class 8 corrosive) dangerous for an ecologically sensitive environment.

chlor *Organo* hybrid synthetic organochlorine manufactured by electrochemistry and NaCl electrolyte as “Acidulous” neutral technologies, produce OH⁻ at the same time in the same space just as ElectroLIFE although with a negative dominance for Total ROS storage (Similar to OCl⁻).

chlor *Organo* has a negative dominance and stores ROS to OH⁻; adding 2% minimum (or slightly more) NaCl increases ROS production, and concentration. The higher pH the stronger the ppm of ROS concentrated like OCl⁻.

chlor *Organo* is a neutral single ion with a single bubble of gas dissolved in a single molecule of water -1/1. This means chlor *Organo* is capable of absorption or transporting through aquaporins as a bio selective action, safe for organics, as it is the damage to the membrane that makes OCl⁻ a pesticide.

It is not the Cl² in OCl⁻ that makes it a pesticide, it is the OH⁻ corrosive action dissolving the membrane so the Cl² can pass.

chlor *Organo* OH⁻ produced is non-corrosive. As the OH⁻ is produced it has a reduced ORP and is heavy on Hydrogen Gas. For these reasons it is the opposite of corrosive it is anti-oxidizing. The difference is single salt NaCl electrolyte.

chlor *Organo* concentrated is for large volume treatment needs without the safety concerns of OCl⁻ manufacturing, transport, storage, and regulated use.

chlor *Organo* is reasonable to manufacture on demand onsite for the ultimate in operational control and savings.

In conclusion: chlor *Organo* is the alternative answer to using industrial pesticides where they are not needed and more importantly dangerous to use.