



WATER OXYGEN TECH

NanoOxygen
SYSTEMS
OXYGEN DELIVERED

NanoOxygen Systems brings advanced nanobubble oxygen and air encapsulation to the golf industry. Utilizing state-of-the-art membrane technology, NanoOxygen Systems infuses water with trillions of microscopic oxygen bubbles to address both lake water algae management and turf oxygen demands.

Nanobubbles – very tiny bubbles that are formed when air or oxygen is sheared into a water stream. The bubbles are less than 200 nanometers in size (about 500 times smaller than the smallest bubble rising from the bottom of a frosty mug of beer or 400 times smaller than a human hair) and can't be seen by the human eye. These small bubbles have no buoyancy, allowing them to remain in the water column and fully infuse it with oxygen from top to bottom.

ALGAE MANAGEMENT

For lake management of algae and water quality, air nanobubbles are introduced into the water column and perform two primary functions – (1) oxidizing the algae

to reduce its population and (2) provide dissolved oxygen (DO) resulting in an increase of beneficial aerobic bacterial populations which consume free nutrients (algae food). This two-punch approach clears the lake of algae and, more importantly, creates an environment for the lake to become sustainably healthy to avoid future algae blooms. This avoids costly chemical treatments, noxious odors, removes the “muck” from the lake bottom, and provides a healthier, algae-free water source for golf course irrigation.

PGA Championship golf courses have benefited from NanoOxygen Systems technology. Nanobubbles, in conjunction with our full line of biological enhancement tools, Byo-Gon PX-109 biostimulant and PondClear bacterial blends, have demonstrated proven success. In the summer of 2019, with less than two months to prepare for one of golf's greatest tournaments, we were able to successfully eliminate a major algae bloom in a 20+ acre lake. We can install fixed or portable systems that make it easy to add nanobubble

technology to any lake or pond with algae problems.

IRRIGATION WATER MANAGEMENT

NanoOxygen Systems offers the only complete nanobubble system available for adding high levels of dissolved oxygen directly into irrigation and spray tank mix water. Using over 95% concentrated oxygen, the system infuses water with high DO levels that deliver this oxygen to the soil reliability all year round. Recent upgrades to our nanobubble generation technology provide “bolt on” application to your existing irrigation pump discharge or tank fill system – allowing for single pass increases in dissolved oxygen that enhance soil health.

Plants absorb water through root systems and healthy root systems with a reliable oxygen supply absorb more potassium, nitrogen and phosphorus for plant nutrition. Additionally, higher DO levels in the root zone, caused by the size and high negative surface charge of nanobubble oxygen, result in higher root mass & stronger roots, enhance microbial degradation of thatch, and contribute to improved turf health. This prevents black layer and plant diseases, such as Pythium, that grow when there is an absence of oxygen and plant roots become anaerobic.

Nanobubble water infiltrates soil more rapidly than untreated water, behaving much like a wetting agent. This results in less run off and more water retained in the root zone. Improved infiltration of irrigation water also means more oxygen supplied to roots deep in the soil, allowing them to push through compacted soil and reducing the need for mechanical aeration.

Using NanoOxygen Systems, irrigation nanobubble oxygen systems deployed at two Australian bent grass golf courses have shown excellent results. Both courses report reduced fertilizer and fungicide use, greatly improved root mass (even in hot summer conditions) and full satisfaction with the nanobubble systems that have improved the quality of their most important input – water.

Contact **NanoOxygen Systems** today to discuss how this game changing nanobubble technology can improve your golf course.