Bishop BioCord™ Reactors for Wastewater Treatment

Simple, low-energy nutrient removal

BISHOPWATER

Bishop BioCord™ Reactors: Cost-effective, customized to your unique needs

BioCord™ Reactors provide a simple, low-energy, fixed-film biological treatment process to dramatically increase the capacity and performance of wastewater lagoons and conventional activated sludge systems.

Modular **BioCord** Reactors are like condominiums for bacteria, incorporating a customizable design that rises up through the water column to suit virtually any treatment conditions and plant design.

The reactor frame supports densely arranged loops of polymer fibres that provide a massive surface area on which preferred, naturally occurring bacteria can thrive.

Integrated aeration grids powered by low-energy compressors

Each **BioCord** Reactor is equipped with a fine-bubble aeration system that provides the optimum level of oxygen transfer and mixing to support bacterial growth and nutrient removal. The mixing and agitation also helps slough excess biofilm from the media to maintain the ideal colony size and composition.

Install, aerate, grow

BioCord Reactors are installed directly into an existing treatment system, which helps to dramatically reduce capital costs by avoiding expansion to the plant footprint or adding sidestream process tanks. Once installed, a **BioCord** Reactor system is self-regulating, uses very little electricity, and requires almost no operator oversight to achieve its performance targets.

These capital and operational benefits make **BioCord** Reactors the ideal solution to improve treatment capacity, accelerate nutrient removal and achieve regulatory compliance.

An optimized **BioCord** Reactor system is capable of achieving significant reductions in target nutrients and other constituents, including:

- Ammonia: 90% or greater;
- Total nitrogen: 50% or greater;
- BOD: 80% or greater.

BioCord Reactors are ideal for increasing treatment capacity and improving nutrient removal in multiple applications:

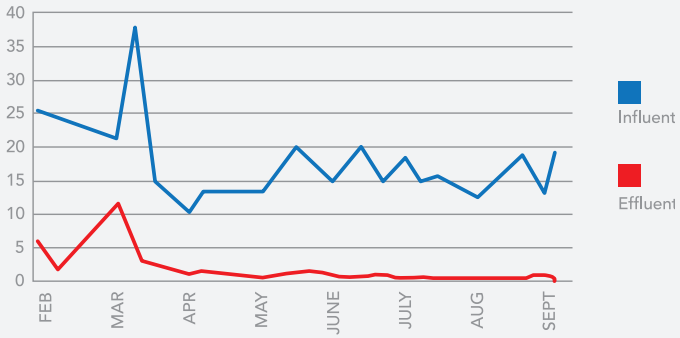
- Municipal wastewater lagoons;
- High-strength wastewater treatment to reduce ammonia, phosphorus and suspended solids;
- Food processing;
- Agriculture;
- Mining.

The advantages of Bishop BioCord Reactors

Dynamic ammonia removal

Whether it's cold-weather, high strength, or more stringent regulations for ammonia treatment, **BioCord** Reactors can achieve up to 99 per cent ammonia removal, even when operating in temperatures as low as 1°C.

Ammonia reductions with **BioCord Reactors**



BioCord Reactors respond quickly to reduce ammonia levels and produce treated effluent that meets regulatory requirements.

Customizable design, performance and deployment

BioCord Reactors offer a flexible, modular design that can be customized to fit virtually any type of secondary treatment process and to handle anticipated flow and loading parameters. Capital costs can be kept low by installing only the required amount of **BioCord** Reactors to achieve performance requirements and can be easily expanded in planned phases as treatment needs increase.

Rapid capacity expansion

Treatment plant capacity can be expanded significantly to meet performance requirements and produce tertiary quality effluent. The **BioCord** Reactors and accompanying aeration system are designed and built in Ontario by Bishop Water and can be delivered to the site fully assembled. Installation is completed in just a few days, while the plant remains in operation.

Trusted, resilient performance

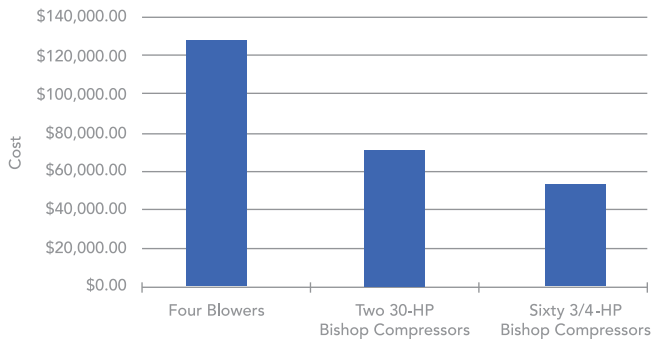
BioCord Reactors are self-regulating systems that respond quickly to variable influent or upset conditions and can continue to meet treatment requirements without operator attention or process modifications. The multi-compressor design also simplifies maintenance since an individual unit can be shut down for service, while the others continue to operate and maintain system performance.

View our video case study of a full-scale **BioCord** Reactor project: **bishopwater.ca/biocord-dundalk**.

Low capital and operating costs

BioCord Reactor systems require no additional tanks or costly, energy-intensive blowers to operate, providing a significant savings in capital and operating costs – often about 50% less than an MBBR system designed to achieve the same ammonia target. Moreover, a **BioCord** Reactor system is self-regulating and self-cleaning, requiring virtually no operator oversight and maintenance.

BioCord Reactors energy consumption vs. alternatives



Individual, low-energy compressors supply air to each **BioCord** Reactor, rather than a complex, costly blower. This dramatically reduces electricity requirements for aeration of **BioCord** Reactors compared to systems that use blowers .

Evaluate BioCord Reactor performance at your facility with a compact pilot system

A compact **BioCord** Reactor pilot system can quickly demonstrate the performance and operational benefits that this fixed-film technology can bring to a treatment plant. The simple pilot system can often be installed and operated alongside the existing treatment process without any modifications to the current Certificate of Approval.

Data from the pilot study will not only validate **BioCord** Reactor capabilities, it also enables Bishop Water engineers to prepare a full-scale system proposal and show the ease and simplicity of adding **BioCord** Reactors to the existing process.

Ask us about Bishop Water Technologies' Solids Management Solutions.

Bishop Water's Solids Management Solutions provide a simple, low-energy and reliable process to collect and rapidly dewater sludge from a wastewater lagoon. The passive dewatering process consistently achieves site requirements for filtrate quality, odour control and containment at a fraction of the lifecycle costs of energy-intensive mechanical dewatering systems.

This highly effective onsite dewatering process also helps achieve significant operational and environmental benefits such as greenhouse gas reductions from reduced truck traffic and power consumption, water quality protection and beneficial reuse of biosolids.

Contact us or visit our website to learn more about Bishop Water's Solids Management Solutions.

Comprehensive services and support for the life of each BioCord Reactor project

A highly experienced and capable team at Bishop Water Technologies supports every aspect of **BioCord** Reactor system engineering, manufacturing and delivery, ensuring the highest level of quality and performance for each site.

Our team works closely with each client to assess site conditions and treatment requirements, design the appropriate **BioCord** Reactor solution and manufacture the system at our headquarters in Renfrew, Ontario. We incorporate the highest quality structural, process and control components to ensure that each **BioCord** Reactor system delivers reliable, trouble-free operation and continually meets performance requirements.

Once on site, Bishop Water's skilled field technicians efficiently install and commission the **BioCord** Reactor system and ensure that operators are fully trained to operate, maintain and optimize the system. Our team also strives to uphold our high standards and industry-leading reputation for responsive, customer-focused support.

Design | Manufacture | Install | Commission | Training | Support | Optimize

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