Bionetix Newsletter

July, 2015

Optimize Your Wastewater Treatment With Nutrient Blends

For decades, wastewater treatment plants have been involving biological treatments to further treat soluble BOD which is difficult to remove in primary treatment. Biological treatment involves microorganisms that break down organic matter. Every wastewater treatment plant is faced with the difficult task of treating, reducing, and disposing of sludge or biosolids. The struggle is how to minimize the amount of sludge to dispose of, while reducing contaminants below the discharge limits, all the while keeping operating costs at a minimum. That is where micro and macro nutrients play an important role.

Each different type of organic matter, be it from municipal or industrial sources, require a different group of microorganisms. These different groups require a variety of micro and macro nutrients in order to be fully active. In general, the availability of nutrients is the limiting factor for bacterial growth, however, oxygen limitation also plays an important role in this puzzle.

Bacteria are classified by their ability to degrade organic matter with or without the presence of oxygen. Aerobic bacteria requires oxygen; anaerobic survives in the absence of oxygen, and facultatives have the ability to survive in aerated and non-aerated environments. The oxygen levels are often the rate limiting step, and play a major role in the operating costs of a biological treatment plant. In general, while there is poor biological degradation, it is generally believed to be due to poor dissolved oxygen levels, or inefficient oxygen uptake. With this, operators tend to increase the aeration, which in turn increases the associated costs. There are two different groups of nutrient supplementation program, micro and macro nutrients. The micro nutrients include a variety of cofactors, vitamins, and trace elements. Macronutrients include proteins, nitrogen, phosphorus, and highly biodegradable carbon such as sugars. A general rule of thumb for effective BOD reduction, the carbon to nitrogen to phosphorus ratio should be 100:5:1. Using this as a guide, effective Biostimulation programs can be used with or without bioaugmentation.

Nutrient supplemented microorganism programs have shown to reduce the amount of oxygen used up, thereby dropping operating costs. Each of the groups require different types of nutrients in order to be fully active. Laboratory studies have shown that micronutrient supplement activated sludge containing trace metals and vitamins have increased COD removal rates and respiration rates.

Cortec® Biotechnology Campus

Eco-technology, innovation, and sustainability.

Cortec® is committed to eco-technology, innovation, and sustainability to discover innovative bio-economic opportunities. Boris Miksic, Cortec's President/CEO said, "We are creating new opportunities to secure a greater share of the world's bio-economy through investment and economic output in biotechnical research."

Cortec® Biotechnology Campus (CBC), a subsidiary of Cortec® Corporation, is responsible for global research, marketing, and manufacturing of products based on biotechnology. The construction of the bioreactors and the development of the fermentation processes will allow CBC to produce the four main microorganism raw materials that Bionetix® International uses in the manufacturing of their products. Bionetix® product costs will be dramatically reduced by up to 80%. These major cost savings will be passed down to our customers.

One of the first and most important initiatives for expanding Cortec's biotechnology program is research and development. This campus houses a modern laboratory with sophisticated instrumentation. With our new CBC Lab Director, Julieta (Julie) Archambault, Research and Development will strengthen, creating a competitive technology platform for expansion into worldwide markets for wastewater treatment, bioremediation, and agriculture products. Julie has over 10 years of experience as a microbiologist working in fermentation and an additional 7 years in the medical device field. Julie speaks Tagalog, the official language of the Philippines, in addition to English. Congratulations and welcome to Julie.

Bionetix® International Is Hosting Its 2nd Bi-Annual World Sales Meeting.

September 20th-22nd, Bionetix® International will be hosting the 2nd bi-annual world sales meeting in beautiful Montreal, Canada. The meeting will include various training seminars on our technologies and product applications. Join us if you are eager to learn more about Bionetix® and the products that are offered. The seminar will be held at the Hotel 10 Montreal, and there will be a trip to the Bionetix® office and warehouse in Sainte-Anne-de-Bellevue where production and laboratory visits will be held.

Featured Product

Multiple Benefits From All Natural Feed Additive for Aquaculture Industry!

Bionetix® International, a wholly owned subsidiary of Cortec® Corporation, in the business of manufacturing microbial based bio-products has specially designed AQUA-FEED - an all natural feed additive for the aquaculture industry. AQUA-FEED bio-converter reduces incidence of disease and mortality while improving weight gain for shrimp, fish, and other aquatic species.

AQUA-FEED is composed primarily of strong immunostimulants ß1,3-ß1,6 D-glucan, a natural mannan-based oligosaccharide and other key ingredients. Aquaculture, particularly shrimp culture, has faced serious losses over the last decade due to the occurrence of diseases including white spot, yellow head, and vibriosis.

Mass mortality has occurred among cultured fresh water shrimp because of pathogenic yeast, bacteria, and viral infections. Results of the study of shrimp mortality have revealed that environmental deterioration, which can lead to the degradation of immunity of shrimp, is the main cause. Studies of the enhancement of the immune mechanism of aquatic animals have been very successful in preventing the mass mortality of shrimp caused by pathogenic infections.

Bio-converter technology assists in keeping aquaculture ponds clean and improves aquatic life. Ponds used for fish or prawn farming are consistently contaminated with bio-mass, shells, fecal matter, etc. These contaminants reduce the level of oxygen and produce methane, ammonia, nitrate, and H2S gases that are harmful to aquaculture and lead to various diseases.

With the use of AQUA-FEED, the degrading bacteria converts these gases into water, carbon dioxide, and free nitrogen, some of which are consumed by zooplankton and the rest released into the atmosphere.

Effective beneficial bacteria have been demonstrated to be effective in the prevention of pathogenic infection in shrimp, and may also enhance their growth rate. With the use of effective bacteria, the soil and water quality of cultured ponds may be significantly improved. The addition of AQUA-FEED in shrimp and fish feed will upgrade the feed quality and may significantly reduce serious diseases such as white spot disease and vibriosis after consumption. The Aquafeed is blended with the various types of food meal that is provided to the fish. Due to the sufficient amount of vitamins and mineral included in AQUA-FEED, no additional vitamins or minerals are needed to make artificial feed.

New Product

Biostimulation with Stimulus, Micro 14, or Macro 10/17

Bionetix® now offers a growing product line for this application. Stimulus is a plant based carbonaceous product used in wastewaters that are dealing with high phosphorus and nitrogen removal. Micro 14 contains various levels of trace elements, vitamins, and co factors. And Macro 10/17, a macronutrient blend is used for wastewaters dealing with high BOD removal, but show very low amounts of nitrogen and phosphorus levels. Call a Bionetix® representative today for more information.

Trade Shows

AWT 2015
SEPTEMBER 09-12, 2015
NASHVILLE, TN

AWT ASSOCIATION OF WATER TECHNOLOGIES

Test Requests

http://www.bionetix-international.com/resources/getrequest.html

Sample Submission

http://www.bionetix-international.com/products/

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Created: 07/2015

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