



Bionetix® Newsletter

February 2019

The Probiotic Prescription for Healthy Septic Tanks and Drains

Probiotics have become a popular dietary supplement for humans, relying on “good bacteria” to improve digestive health or provide other benefits. In a similar way, “probiotics” (aka, bioaugmentation) for septic and sewer systems can improve the efficiency of septic tanks, grease traps, and drains while helping to avoid problems like odor and clogging by helping to digest contaminants.

Plumbing Problems

Septic tanks already rely on a healthy population of naturally occurring microorganisms to lower pollution. These “good bacteria” work to break down the waste

that enters a septic tank. After entering a septic system, the waste separates into three parts: heavy particles that settle on the bottom and form sludge, scum that floats to the top (e.g., oils, greases, and other waste products that are lighter than water), and liquid effluent. The digestion of organics starts in a tank and then drains to the leach field for further degradation. The sludge must be periodically pumped out to keep it from backing up and overflowing into the drain field to clog and upset the whole system.

While the natural microorganism population can often meet the demand to biodegrade septic tank sewage, sometimes it needs an extra boost. For instance, bleach

and other harsh chemicals from household use (e.g., laundry wastewater) or chemicals used to kill roots invading the drainage system can damage the bacterial population. Microorganisms also may need time to get reestablished after sludge is pumped out. Another problem is that grease buildup in the scum layer at the top of the tank may have difficulty breaking down.

Grease buildup can also be a problem for restaurants or other commercial entities that release a high amount of FOG (fats, oils, greases) in



Microbes are powerhouses of contaminant biodegradation.



their waste. Grease traps can overflow, and pipes can get clogged. Bad odors and frequent blockages eventually accumulate into plumbing headaches.

Probiotic Prescription



Biological treatments can cut down on grease buildup and sludge formation in grease traps and septic tanks without the use of harsh chemicals.

A good dose of “probiotics” can help avoid and remedy these septic and sewage problems in an environmentally friendly way, without harsh chemicals. Adding biological microorganisms and appropriate nutrients to septic tanks helps replenish the natural microbial population and speed up the breakdown of contaminants. Special microorganisms targeted to degrade fats can help reduce scum at the top and make water in a tank less polluted. Bacteria that naturally produce cellulase, protease, amylase, and other specific enzymes can accelerate the biodegradation of toilet paper or a variety of other wastes that accumulate in the tank. Overall, the use of these biologicals reduces the amount of sludge, reducing the frequency of pumping needed and lowering the risk of drain field contamination from sludge overflow. The result is an overall healthier septic system with less required maintenance. Biologicals are typically added in tablet, pouch, or liquid form once a month after an initial shock dose has gotten the system in balance. When the bacteria hit water, they start waking up, eating contaminants, and reproducing according to the amount of “food” (contaminants) available.

A similar situation occurs with grease traps and clogged drains. Biological treatments can be poured down the drain at the end of the day to allow a healthy microbial population to get established in the pipes

and start eating away at grease blockages. Microorganisms that release enzymes and biosurfactants to loosen the grease are also good for adding directly to grease traps, where they can reduce odor problems and cut down on the amount of fat accumulation. A monthly maintenance dose helps keep grease buildup in check.

Positive Results

The Golden Spur Restaurant in Ryazan, Russia, is just one example of successfully adopting a “probiotic” plan for grease trap and sewerage problems. The restaurant’s grease trap was releasing bad odors, and the sewerage was clogged frequently. The restaurant was able to effectively remedy the recurring problem by adding one biological product directly to the grease trap and pouring another biological product (heavy on bacteria that produce amylase and lipase) down the sink drain holes to solve the pipe blockage problems. Following the successful treatment, the restaurant wrote an official letter recommending the same method for other food production facilities.¹

While septic tanks and other sewerage do not always have problems, the implementation of bioaugmentation is a good way to maintain a healthy system to avoid those problems in the first place, or to aid in recovering from those problems when they do happen. A big advantage is that “probiotics” for plumbing do so naturally—without the use of harsh chemicals and with the additional convenience of reducing bad odors and pumping frequency.



References:

1. Bionetix® International. “Restaurant Sewerage Blockage and Grease Trap Odor Control.” Case History 21. December 2018. Retrieved 9 Jan 2019 from <<https://www.cortecvci.com/wp-content/uploads/ch021.pdf>>.



BIONETIX® NEWS

New Wastewater Brochure

A new brochure by Bionetix® parent company, Cortec® Corporation, addresses the problem of corrosion in wastewater treatment plants. It also includes a section on improving wastewater treatment efficiency with Bionetix® biologicals. Bionetix® supplies a quality range of specialized microorganisms and nutrients that help speed up the degradation of target contaminants, reduce sludge and odor, and avoid plant upsets. A product selection guide at the end of the brochure shares a description of seven biological products suited to wastewater treatment applications. To view the full brochure, please visit: http://cortecwastewatertreatment.com/wp-content/uploads/2018/12/VpCIMCI_Tech_Wastewater_Treatment_12-18.pdf

Bionetix® Shares ‘Greener’ Cleaning/Sanitation Solutions at ISSA 2018

Bionetix® tablets such as BIOBOOST Tablet 1T™ and FIZZY-TAB™ for septic tank maintenance were some of the most popular products among visitors to the Bionetix® booth at ISSA 2018 (October 29th-November 1st in Dallas, Texas). Bionetix’s line of HYGIEA™ concentrates also caught attention because of the many cleaning, grease control, and septic maintenance products that can be formulated from this line of biological concentrates. Bionetix® was also able to address questions from potential distributors considering carrying these environmentally friendly cleaning products.



Bionetix® Passes ISO 9001:2015 Surveillance Audit

Bionetix® International has successfully passed this year’s ISO 9001:2015 Surveillance Audit with no non-

conformances. The external audit was carried out by SGS on January 23rd, 2019. This audit was focused on the Context of the Organization, Planning & Risk, Manufacturing & Quality Control, Non-Conforming Product, Corrective Action & Improvement, Internal Audits, and Management Review. The audit confirmed that Bionetix® meets all requirements under the ISO 9001:2015 Standard.



Bionetix® Officially Releases AQUACLAR™ to Naturally Enhance Water Clarity

AQUACLAR™, officially released last August, is an excellent natural solution for enhancing water clarity. AQUACLAR™ contains non-pathogenic bacteria that digest organic waste and “eat” the same nutrients responsible for nutrient pollution, a prime culprit for algae growth. AQUACLAR™ also lowers toxicity by allowing sequestration of heavy metals and ammonia that could be detrimental to aquatic life. It is easy to use, safe for humans and wild animals, and creates a beneficial environment for fish. Its multiple benefits can accomplish many water quality tasks:

- Reduce BOD and COD
- Break down fecal and other organic waste in water
- Maintain clarity
- Reduce ammonia and other toxins
- Reduce TSS and organic sludge
- Prevent malodors
- Reduce nutrient pollution
- Remove nitrogen
- Increase dissolved oxygen levels

To learn more about AQUACLAR™, please visit: https://www.cortecvci.com/whats_new/announcements/Bionetix-Aquaclar-PR.pdf

CASE HISTORIES FROM AROUND THE WORLD

Soil Bioremediation in Croatia

A 2015-2017 pilot bioremediation project has led to the adoption of an ongoing soil bioremediation plan using BCP35S™ and BIOSURF™. The customer was required to remove all contaminated soil polluted with oil and diesel fuel from the oil and gas fields and gas stations with which it was working. Based on a successful bioremediation trial, the customer built a landfill for treating the contaminated soil and planned to decontaminate 3000-5000 tons of soil per year according to the following process:

1. Collect and analyze contaminated soil.
2. Prepare product for bioremediation based on analysis.
3. Level soil to a height of 0.5 meters and spray with a mixture of BCP35S™, BIOSURF™, and fresh water while simultaneously agitating soil (Bionetix® “Bioremediation of Petroleum Hydrocarbon Contaminated Soils with BCP35S™ and BIOSURF™” procedure is used).
4. Repeat every 10 days.
5. Soil returns unpolluted to nature after 3-5 months.

To read the full case history, please visit: <https://www.cortecvci.com/wp-content/uploads/ch020.pdf>

Soybean Field Test in Japan

In the summer of 2018, a Japanese farmer of soybeans and potherb mustard set aside one half-acre out of 12 to perform a trial of SOIL-BAC™ and ORGANIC PLUS™. The goal was to suppress replant failure, which had resulted in a production rate of approximately only 30 percent for all fields. The two biological products were applied to the half-acre test field at a rate of 1.3 liters of ORGANIC PLUS™ and 1 kg of SOIL-BAC™ per 0.25 acre.

A positive change in the soil structure was noted following the applications. The soil structure was more stable with finer aggregates and higher oxygen content. ORGANIC PLUS™ promoted the immunity of the crops and the growth of useful soil microorganisms. No mold-like microorganisms were growing on the test field. There were fewer weeds, and these could be easily pulled out due to soil structure improvement.

By August 30th, there was no trouble with the soybean growth in the test zone, and the germination rate was extremely good despite abnormally high temperatures. However, excessive drought and soybean blight destroyed seven acres of soybeans outside the test zone. Soybeans withered, and there was a replant failure of approximately 40 percent. To the farmer's surprise, the final yield in the area tested with SOIL-BAC™ and ORGANIC PLUS™ was 100 percent.

To read the full case history, please visit: <https://www.cortecvci.com/wp-content/uploads/ch022.pdf>

Shopping Center Sewage Treatment in Russia

In 2016, a shopping center in Russia was struggling with FOG, BOD5, COD, and TSS pollutant levels in its sewage exceeding allowable discharge levels. Live Ecology No. 2, a ready-to-use biological product derived from HYGIEA 2400™, was regularly added to the sewage from April to December of 2017. The main pollution indicators dropped by 2-3 times in just the first month, and the satisfied customer wrote a letter of recommendation in favor of cooperation with Live Ecology, the Bionetix® representative.

To read the full case history, please visit: <https://www.cortecvci.com/wp-content/uploads/ch023.pdf>



RECENT PRODUCT FEATURES BY INDUSTRY PUBLICATIONS

Odor Control Products

In October 'Pumper'

ECO-SCENT™ is a biodegradable, free-flowing liquid odor eliminator formulated for easy application directly to odor-emitting areas. Its active ingredient works by forming a complex with odor-causing organic compounds such as rotting foods, aged urine, and perspiration. This yields a lower concentration of these organic molecules, reducing odor. It can be used in a spray bottle and sprayed as needed into the air around and directly on odorous surfaces. It may also be added to mop water and used on floors and around urinals, leaving behind a fresh, clean fragrance.



Pond/Treatment Plant Products

In August 'Treatment Plant Operator'

AEROBOOSTER-O²™ supplies ponds and wastewater with an oxygen source to promote aerobic conditions, reduce bad odors, and accelerate the digestion of con-

taminants. The slow-release supply of oxygen boosts the growth of biomass. It also fights bad odors by accelerating the oxidation of odorous substances such as hydrogen sulfide, ammonia, and other chemicals that form in anaerobic conditions.

Septic/Grease Trap Products

In October 'Onsite Installer'

BIOBOOST Tablet 1T™ is a natural treatment for septic tank maintenance and aftershock treatment. It relies on a high-density, 1 trillion-count blend of bacteria with biological nutrients and stimulants to naturally biodegrade paper, oils, greases, and waste. It is especially efficient for treatment after toxic shock from the use of strong bleaches or other harmful chemicals, such as root killers. The tablet reduces odors and methane, prevents pipe and drain blockage, and decreases pumping frequency.

In October 'Pumper'

BIOBLOC 22™ is a slow-release block that can be placed in grease traps to fight grease buildup over time. It contains penetrants and surfactants designed to loosen and liquefy heavy grease deposits, assisting in their biodegradation. Microorganisms digest the grease, helping reduce grease buildup and minimize foam and odors. BIOBLOC 22™ is designed to help lower grease disposal costs, prevent emergency blockages, keep floats clean, and reduce grease buildup.



In November ‘Pumper’

ECO-SEPT™ pouches contain pink, granular powder with a high concentration of beneficial bacteria (28 billion per pouch), enzymes, biological nutrients, and stimulants designed to improve the microbial action of a septic system. When added to a septic tank, they reduce the frequency of pumping by degrading paper, grease, vegetable waste, and other organic wastes quickly. This helps keep sewer lines open, prevents drain blockage and backups, extends life of leach field lines, and reduces foul odors.



BIONETIX® PUBLISHED ARTICLES

‘Refinery water treatment extends service life, increases efficiency’

An article published in the August 2018 print edition of Oil & Gas Engineering includes a section on “Reducing wastewater discharge costs” through biological treatments like those provided by Bionetix®. Refineries tend to have high levels of hydrocarbon contaminants in wastewater. They can improve efficiency and avoid plant upset by supplementing their normal biological treatment with bioaugmentation, the addition of special microorganisms targeted to consume hydrocarbons. Bioaugmentation can lower COD/BOD levels and reduce bad odors.



The full article can be found on page 16 at http://bt.editionsbyfry.com/publication/?i=517941#%22{\%22iss ue_%22

‘A Probiotic Prescription to Remedy Stressed Septic Tanks’

An abridged version of this newsletter’s opening article was featured as an “online exclusive” at Pumper.com in January. The article focuses in, for its septic pumping audience, on how bioaugmentation can be used to keep stressed septic tanks and grease traps in balance and functioning efficiently.

The article can be found at: https://www.pumper.com/online_exclusives/2019/01/a-probiotic-prescription-to-remedy-stressed-septic-tanks





Upcoming Events

ISSA SHOW 2019

June 5th-7th, 2019
World Trade Center
Mexico City, Mexico
Booth #209
www.issa.com

ISSA SHOW 2019

November 18th-21st, 2019
Las Vegas Convention Center
Las Vegas, NV
USA
Booth #234
www.issa.com



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Created: 02/2019

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