Ammonia Reducing Bacterial Aid

BIO-SYSTEMS® INTERNATIONAL

Description

This series of products contain a special blend of microorganisms to provide a consistent seed of both types of nitrifiers for ammonia conversion.

The nitrifying bacteria are composed of two groups; Nitrosomonas spp. and Nitrobacter spp. The Nitrosomonas spp. convert ammonia to nitrite and the Nitrobacter spp. convert the nitrite to nitrate. Nitrifying bacteria are autotrophic (able to use carbon dioxide as the sole source of carbon) and are relatively slow growing. Typical doubling times may be 8 to 16 hours. They are also highly oxygen sensitive, requiring relatively high aerobic conditions for maximum growth rates. Variations in pH, temperature, and the concentrations of organic material also influence the activity and growth rates of nitrifying bacteria. As a result the nitrifying population of many wastewater facilities is frequently destroyed or washed out of the system because of its inability to competitively reproduce at a sufficient rate.

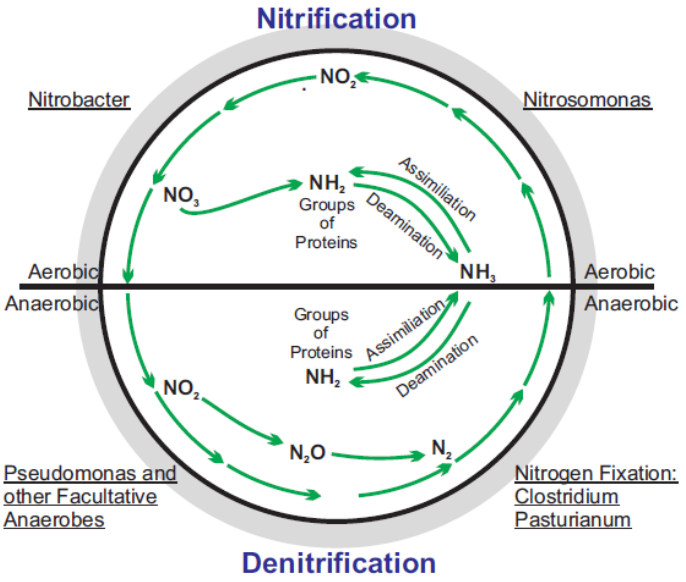
By utilizing selected strains of both Nitrosomonas spp. and Nitrobacter spp., it has been possible to adapt the bacterial cultures to function over a wider range of pH values than those normally encountered in the nitrifying population. Similar adaptation and selection techniques have been employed to increase the toxic threshold limiting concentrations of ammonia, nitrate, and nitrite which may inhibit the growth of these extremely sensitive microorganisms. BioBug NH3 series have demonstrated the ability to remove ammonia, nitrite and nitrate.

Benefits of BioBug NH3:

- Accelerate the establishment of nitrification in newly commissioned or seasonally operated plants.
- Assist in the maintenance of satisfactory nitrification in plants with a history of inconsistent performance.
- Provide a reseeding mechanism.
- Reseed when adverse biochemical conditions limit or stop nitrification.

Nitrification and denitrification are the processes by which nitrogen is cycled within an aquatic ecosystem. Nitrification is an aerobic process where ammonia nitrogen is oxidized to nitrate. Two organisms are primarily responsible for nitrification in aquatic systems. The organism Nitrosomonas is responsible for the conversion of NH_3 to NO_2. NO_2 is then converted to NO_3 by the organism Nitrobacter. These organisms have specific requirements for successful nitrification in waste treatment systems. Those requirements are listed below:

pH -	Range of 7.0-9.0,optimun 7.8
Alkalinity -	7.1 $CaCO_3$/ NH_3 consumed
Temperature -	45-104 ^oF
Dissolved Oxygen -	4.5mg O_2 /mgNH_3



Combine BioBug NH3 with other BIO-SYSTEMS products to create a complete program for Ammonia Control!

1-800-232-BUGS
2847
www.BIOBUGS.com

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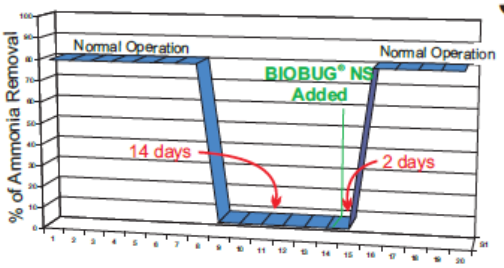
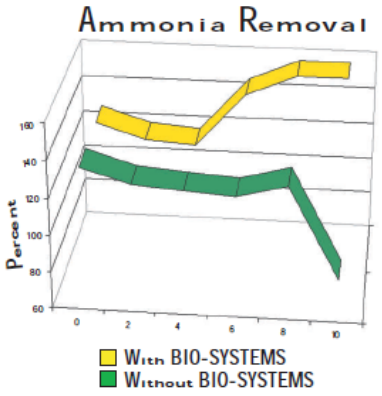


Success Story 1002

An Indiana municipal treatment facility treating approximately 2mgd lost the ability to remove ammonia due to a spill of toxic material. This occurred in the middle of February, the worst time for recovering ammonia removal. On February 18th they added 30 lbs. of BioBug nitrifiers directly to the aeration basin. Within two days the treatment plant was in compliance for ammonia.

The data and observations indicate the treatment plant did not historically achieve nitrification on a regular basis. **BioBug NH3** reduces the frequency and levels of chemical spikes thereby enabling the nitrifier organisms to function at a lower inhibition level. During the addition of **BioBug NH3** to the treatment plant, the degree of nitrification increased significantly due to the reduced presence of inhibitory compounds and enhanced rate of nitrifier growth encouraged by the **BioBug NH3**

The performance of the plant during the addition of **BioBug NH3** is better than previously experienced with respect to nitrification.



Success Story 824

Application

General application rates are calculated on the basis of total ammonia loading per day. Dosage is 2 kilo per week for every 1 kilo of ammonia loading per day. Repeat every week until system is stabilized with acceptable ammonia concentrations.

Some adjustment may be necessary at high temperatures or low temperatures. For seasonal or widely fluctuating flows or loadings, contact your BIO-SYSTEMS technical representative.

Your local Distributor is:

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