

Ammonia Reducing Bacterial Aid

Specifications

Form: Free-flowing liquid
Color: Dark Red
pH range: 6.5-8.5
Temperature range: 5C - 43C (40F - 110F)

Packaging

NS500 - 8 oz, 1 lb, or 2 lb containers.
NS500 - is shipped next day air in ice packed coolers.

Storage

DO NOT FREEZE! 918 Store in a cool location & 917 keep refrigerated.
Do not inhale mists, avoid excessive skin contact. SEE M.S.D.S.

Application Instructions

Treatment Plants

Flow Rate

Up to 5,000 gpd
Up to 50,000 gpd
Up to 250,000 gpd
Up to 500,000 gpd
Up to 1 mgd
Up to 5 mgd
Up to 12 mgd
Up to 100 mgd

Initial Dosage

½ lbs. per day for 2 days
2 lbs.*
5 lbs.*
10 lbs.*
20 lbs.*
15 lbs. per mgd*
15 lbs. per mgd*
10 lbs. per mgd*

Maintenance**

1 lb. per week
2 lb. per week
¼ lb. per day
½ lb. per day
1 lb. per day
1 lb. per mgd per day
¾ lb. per mgd per day
½ lb. per mgd per day

* Apply this amount in one dosage.

** Add as regularly as possible. If it is required to miss one day, add that day's product with the next dosage.

Dosage rate will vary with flow rates, retention times and system variations. The rates above are for a typical, well maintained system.

Activated Sludge Systems

Activated Sludge Systems include various process flow sheets for example: Extended Aeration, Contact Stabilization, Step Aeration, Oxygen Activated Sludge. The application rate for all products is based on the average daily flow rate to the aeration basin, excluding the return sludge stream. For seasonal or widely fluctuating flows, contact your local technical representative.

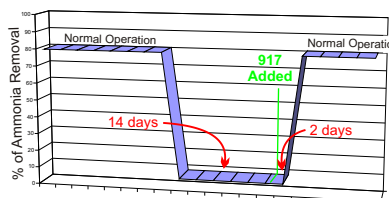
Trickling Filter and Rotating Biological Contactors

The application rate for all products is based on the average daily flow rate to the filter or contactor, excluding any recirculating process stream. For seasonal or widely fluctuating flows, contact your local technical representative.

Lagoon Systems

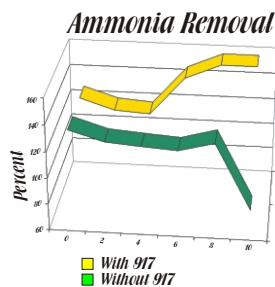
- For aerated lagoon systems, the application rate based on the average flow to the lagoon.
- For facultative lagoon systems, the application rate is based on the lagoon surface area:

Day 1 through Day 5	20 lbs. per ten acres per day
Day 6+	2 lbs. per ten acres per week
- For lagoons in cold climates, commence program when the water temperature is a least 60°F



Case History 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 917 directly to the aeration basin. Within two days the treatment plant was in compliance for ammonia.



Case History 824

The data and observations indicate the treatment plant did not historically achieve nitrification on a regular basis. 917 reduces the frequency and levels of chemical spikes thereby enabling the nitrifier organisms to function at a lower inhibition level. During the addition of 917 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 917.

The performance of the plant during the addition of 917 is better than previously experienced with respect to nitrification.

Ammonia Reducing Bacterial Aid

Description

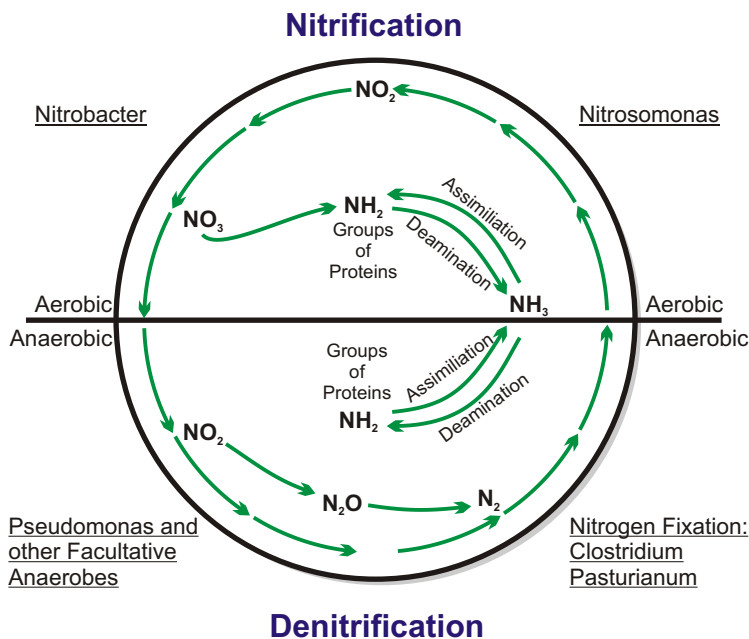
This series of products contain a special blend of microorganisms to provide a consistent seed of both types of nitrifiers for ammonia conversion.

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. 917 series have demonstrated the ability to remove ammonia, nitrite and nitrate.

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, optimum 7.8
Alkalinity -	7.1 $\text{CaCO}_3/\text{NH}_3$ consumed
Temperature -	45-104°F
Dissolved Oxygen -	4.5 mg $\text{O}_2/\text{mg NH}_3$



Benefits of 917 and 918:

- 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.

**Combine 917 / 918 with more
of our products to create a
complete program for
Ammonia Control!**