

Cycles Aquariums Fast

Understanding The Nitrogen Cycle & Your Aquarium!



Gaseous nitrogen into the air
Nitrogen Gas (N₂)

Denitrification
The reduction of nitrate in filtered aquarium anoxic zones

MICROBE-LIFT/SPECIAL BLEND (already added in step #1) contains denitrifiers that function without oxygen. These select microbes can remove aquarium nitrates by converting nitrate to nitrogen gas that bubbles harmlessly into the atmosphere under the anoxic conditions in aquarium filters and biofilms.



Nitrate (NO₃⁻)
A food source for plants and algae

Nitrobacter sp. & Nitrospira sp.

MICROBE-LIFT/NITE-OUT II (already added in step #2) provides the necessary Nitrobacter and Nitrospira bacteria required for the oxidation of nitrite to nitrate in the aquarium filter!



Nitrosomonas sp.
(contained in ML/NITE-OUT II)
converts ammonia to
Nitrite (NO₂⁻)

Fish Waste plus Uneaten Food Protein & Dead Plant Matter
Broken down by the aquarium biology and ammonia is released

step #1: add MICROBE-LIFT/SPECIAL BLEND

Speeds the removal of all organic waste matter in aquariums by adding a select group of microbes that increase the rate of organic breakdown and improve filter performance.



step #2: add ML/NITE-OUT II

Provides the necessary nitrifying bacteria (Nitrosomonas sp., Nitrobacter sp. and Nitrospira sp.) required for the biological nitrification process, and assures the continued removal of toxic ammonia!



MICROBE-LIFT®

The Nationally
Advertised Brand for
Independent Retailers

Experience the Miracle



Cycles Aquariums Fast



MICROBE-LIFT®/Special Blend & MICROBE-LIFT®/Nite-Out II

is the only *natural* aquarium treatment program to cycle and balance your aquarium fast using a safe, microbial, non-chemical biological process which *naturally*: controls and eliminates waste organic matter; enhances water quality; and, reduces and controls toxic ammonia, nitrite and nitrate.

Just follow these simple steps.

Step #1: Add **MICROBE-LIFT®/Special Blend** to your aquarium to break down and degrade all waste organic matter, assuring an improved environment for aquatic life and plants. **MICROBE-LIFT®/Special Blend** seeds aquarium water, filters and establishes necessary bio-films in filters and on aquarium surfaces removing unwanted waste matter and clarifying aquarium water *fast!* **MICROBE-LIFT®/Special Blend** will also reduce and eliminate any aquarium odor.

As the organic waste matter in your aquarium—i.e., dead plant life, excessive fish food and fish waste—is broken down by aquarium biology, the waste matter is converted to ammonia in a process called *Ammonification*. As the ammonia levels build in your aquarium, it can become toxic to fish and marine life and must be biologically removed *quickly*. *Nitrification*—the natural, biological ammonia removal process—is done by a group of microbes called *nitrifying bacteria*. Nitrifying bacteria are very slow to grow (requiring as much as 18 hours for a single cell division compared to every 45 to 60 minutes for waste degraders) and often require weeks to naturally develop the necessary population to convert all the ammonia produced in your aquarium.

Step #2: Use **MICROBE-LIFT®/Nite-Out II** to quickly establish the necessary nitrifying cultures and the ammonia removal process in your aquarium. Just add **MICROBE-LIFT®/Nite-Out II** and these cultures will grow and convert the toxic ammonia to nitrite, and then to nitrate. **MICROBE-LIFT®/Nite-Out II** also contains *Nitrosomonas*—which convert ammonia to nitrite—and *Nitrobacter*—which convert nitrite to nitrate.

In addition, you should know the term *Carbonate Alkalinity* because the biological nitrification process that removes toxic ammonia from your aquarium in order for it to cycle properly requires a source of inorganic carbon. It takes 7.1 pounds of carbonate alkalinity for every pound of ammonia removed from your aquarium water. If carbonate alkalinity is *not* available in aquarium water, it's just like your car running out of gas! The nitrification process will stop, or may not even get started. To ensure toxic ammonia is removed by the necessary nitrifying bacteria, you must test your aquarium water for adequate carbonate alkalinity until there is a minimum of 50ppm. Then add **MICROBE-LIFT®/Nite-Out II** to ensure rapid and complete ammonia removal by the nitrifying microbes.

MICROBE-LIFT®/Special Blend & Denitrification

MICROBE-LIFT®/Special Blend provides a real value to your aquarium's environment. In addition to being one of the BEST products you can use to speed the biological removal of unwanted, slow-to-degrade organic matter from your aquarium environment, the novel cultures in **MICROBE-LIFT®/Special Blend** assist in the removal of nitrate from aquarium water via a process called *Denitrification*.

While some aquarium nitrate is removed by plants and partial water changes, the most effective way to control nitrate removal is by biological denitrification. In this process, nitrate removal takes place in the anaerobic areas, such as those found in aquarium filter bio-films. **MICROBE-LIFT®/Special Blend** cultures are also *denitrifying microbes* that provide an important nitrate removal pathway assisting in the removal of nitrate via denitrification. **MICROBE-LIFT®/Special Blend** includes high-rate denitrifiers that convert nitrate to nitrogen gas under an anaerobic condition that exists in filters and aquarium surface bio-films, reducing the nitrate level in your aquarium. It is noteworthy that algae can use nitrate as a nutrient.

MICROBE-LIFT®/Special Blend and MICROBE-LIFT®/Nite-Out II are the answer to a Natural, Clean, Clear NON-TOXIC Aquarium Environment! You can rely on these two novel, biological products to enhance water quality by removing slow-to-degrade waste matter, and removing and controlling ammonia, nitrite and nitrate via their natural, non-chemical biological process.