MICROBE-LIFT®

POND FAQs

Frequently Asked Questions

Ecological Laboratories INC

Visit Our Web Site:
www.microbelift.com

Email: info@microbelift.com

Ecological Laboratories INC

Solving Environmental Problems *Naturally* Since 1976

BACTERIA QUESTIONS

PRODUCT GENERAL INFORMATION

Q. Why does the MICROBE-LIFT/PL smell like rotten eggs?

A. The smell is attributable to the natural production of hydrogen sulfide by sulfate reducing bacteria as part of the ecosystem. This provides a source of energy for the purple sulfur bacteria in the product and, as a metabolic inhibitor, preserves the product giving it its long shelf life.

Q. If I open it and there's no smell, how do I know if it's still good?

A. If there is no smell, it doesn't mean it is dead. The bacteria are dead when it is whitish-grey and has a burnt rubber smell. If it is pink or brown in color, just shake it up and it should be fine.

Q. What environmental factors will negatively impact the performance of the bacteria in the pond?

A. Neighbors spraying pesticides in the area; nearby parking areas with road cleaning chemicals from maintenance vehicles; countywide pesticide spraying programs; unseasonable temperature drops; chlorine from tap water; salt and other medications added to the pond; lime and acids from cement foundations; hurricanes and strong winds blowing toxic debris into the pond. Although these will impact the bacteria, it should not eliminate all from the pond. The bacteria can reestablish itself.

Q. Does ML/Sludge Away permanently discolor my pond?

A. No, the dark color from Sludge Away is not permanent. When added to the pond, Sludge Away will usually turn the water dark-colored. The color can take up to 1-2 weeks to dissipate but is harmless to plants, fish or other inhabitants and will not harm humans or animals. The color is due to the type of bacteria necessary to biodegrade the more difficult buildup of debris and sludge. The bacteria must first solubilize the sludge before it can be biodegraded. It is the solubilization process which discolors the water. Depending

months. The ideal storage temperatures are between 40-105°F.

Q. Does the water need to be a certain temperature for the bacteria to work?

A. For the MICROBE-LIFT/PL the temperature should be 45°F or above. For ML/ Autumn/ Winter Prep, the bacteria are psychrophiles, low temperature strains, that are active below 45°F.

FILTERS

Q. If using a biological filter, why add live bacteria?

A. The biological filter will benefit from a bacterial inoculation to get it jump-started in spring. The bacteria in MICROBE-LIFT also do many targeted chores in the pond, some of which are in areas that do not traverse the filter, such as bogs or the bottom of ponds with no bottom drain. The answer to this would be that you cannot have too much "good guy" bacteria in the pond. Any excess of the beneficial bacteria will simply die off when the food supply is gone. We recommend the maintenance dosages to assure the optimum numbers and distribution of bacteria for the best results under the changing conditions in your pond.

UV LIGHTS

Q. Will a UV light interfere with the bacteria in MICROBE-LIFT?

A. Yes. We recommend that you turn off the UV light for a 48-72-hour period after the initial application and for 24-48 hours after each subsequent application. This is when the organisms are growing most rapidly and when they are the most sensitive to the UV light. UV lights are sterilization units and kill bacteria and single-celled plants as they pass through. Ozonators (not to be confused with oxygenators or aerators) will do the same and should be shut down until the ML bacteria become established.

the amount of buildup to be solubilized, the discoloration time will vary.

WINTER FAQ's

Q. Do I need to worry about your products becoming unusable if they get frozen over the winter? Can these be stored in the garage over the winter season, or do I need to bring them inside?

A. The MICROBE-LIFT products, such as the liquid bacteria, will remain viable once they thaw, if frozen. However, they will lose some viability, about 10%, with each freeze/thaw cycle, so it is better if they do not freeze at all. The bigger problem is excessive heat in storing live bacterial products. You should be able to store the products in the garage for the winter. The ideal storage temperatures are between 40-105°F.

Q. Should the products be used during the winter months?

A. MICROBE-LIFT products can be used continuously all year, even if used under a layer of ice. If there is a layer of ice on the pond a heater or de-icer should be used to maintain a hole in the ice for gas exchange. Otherwise stimulating biological activity can be detrimental. If the products are under icy water they will continue to work, however they will not proliferate at the rate they would at 65-70°F.

Q. How should MICROBE-LIFT products be stored?

A. A cellar, garage or shed should provide the necessary protection. The ideal storage temperatures are between 40-105°F.

SUMMER FAQ's

Q. How should MICROBE-LIFT products be stored?

A. Products should be protected from extreme heat and direct sunlight. It can withstand heat up to 105°F before starting to die. A cellar, garage or shed (but not in an attic in the shed) should provide the necessary protection during summer

upon the amount of buildup to be solubilized, the discoloration time will vary.

Q. What is bioaugmentation for my water garden?

A. It is the purposeful inoculation of a pond with a pre-selected consortium of microorganisms to establish the ideal numbers and distribution of microbial populations to restore the natural balance to your pond. This provides a healthier environment for all forms of aquatic plant and animal life in an ecologically balanced pond.

Q. What is the difference in using liquid product over dry bacterial product?

A. A major benefit in using liquid (live) bacteria over powdered (spore) bacteria is that the live bacteria will start to colonize and go to work immediately whereas the powdered will take longer and the liquid bacteria possess photosynthetic properties which are not available in the powdered forms. The powdered (such as ML/TAC) on the other hand, contains additional beneficial additives that may not be in the liquid, such as sodium bicarbonate, sea salt and activated carbon. A primary difference, which is instantly noticeable, is the lack of odor in the dry product.

Q. Do the microbes need special conditions in the pond in order to work?

A. It can't be used within 72 hours of the application of pesticides or algaecides. It is also necessary to turn off any UV lights for minimum of 24 hours after an application to allow the bacteria to become established. Microbes work best in a pH neutral range, 6.5 – 8.6.

Q. Are these products safe for use with pets, humans and other wildlife?

A. Studies with MICROBE-LIFT in shrimp farms and fish farms have shown the other livestock grows larger because they are healthier when the MICROBE-LIFT is used. We have studies from a certified toxicology lab on acute oral toxicity, acute and chronic dermal toxicity, and acute ocular toxicity and the MICROBE-LIFT is negative for all. Copies of these reports are available on request.

Q. Can microbe-lift cause dermatologic or ocular reactions in humans or other pets?

A. We have studies from a certified toxicology lab on acute oral toxicity, acute and chronic dermal toxicity, and acute ocular toxicity and the MICROBE-LIFT is negative for all. Copies of these reports are available on request. The chemical treatments (parasite protections, wound healant, pH buffer, etc.) must be used as directed as these are not biological interventions. These contain chemicals to be used in times of crisis intervention. (MSDS sheets can be found on our website www.microbelift.com)

Q. What if the bacteria are ingested? Can the bacteria be harmful in any way to dogs, cats or birds drinking out of the pond?

A. We don't recommend drinking right out of the original container; however in the pond the bacteria are safe and anything in the pond can safely be ingested. There is NO oral toxicity.

Q. Can any of the bacteria harm sick fish?

A. MICROBE-LIFT is beneficial to sick fish in many ways. All products were formulated specifically to reduce stress and some are to treat sick fish. The bacteria in MICROBE-LIFT products will target organic debris in the pond and have been proven safe for use with fish, plants and other wildlife. (Use the MICROBE-LIFT chemical treatments, such as ML/Pond Fish Parasite Treatment, ML/Pond Fish Protectant, ML/Pond Fish Wound Healant, etc, to promote healing in sick fish.)

Q. Will any of the MICROBE-LIFT pond products harm pond plants?

A. No. Pond plants have benefited from use of MICROBE-LIFT products in the pond. Certain products, such as MICROBE-LIFT/ENSURE and ML/BLOOM & GROW are formulated especially for healthy plant growth.

Q. If using a biological filter, why add live bacteria?

A. The biological filter will benefit from a bacterial inoculation to get it jump started in spring. The bacteria in MICROBE-LIFT also do many

Q. What is the shelf life of the dry enzyme products?

A. All of our dry biological products, and the dry bio-products with added enzyme and other support material have an extended shelf life well beyond our two year stated claim. The dry formulation consist of multiple strains of spore forming microorganisms and these microorganisms can stay in the spore form (dormant state) for an indefinite period of time when properly stored.

Q. What is the purpose and function of the enzymes?

A. The method of enzyme microbial activation is two fold: a) the addition of water; b) the presence of waste organic matter. Both of these factors are required to activate the powdered microbes and stimulate the biological oxidation process.

SLUDGE

Q. What will MICROBE-LIFT products do for my pond or lagoon?

A. It improves the clarity of the water, it reduces ammonia levels, nitrogen levels, reduces noxious odors caused by urine, fecal matter, algae, overfeeding, etc., reduces hydrogen sulfide odors, improves dissolved oxygen level, reduces buildup of bird droppings and organic sediment. All MICROBE-LIFT products are geared toward balancing the pond ecosystem. Some are more directed toward sludge problems, such as ML/Sludge Away and ML/Sludge Away Booster.

Q. Does ML/Sludge Away permanently discolor my pond?

A. No, the dark color from Sludge Away is not permanent. When added to the pond, Sludge Away will usually turn the water dark-colored. The color can take up to 1-2 weeks to dissipate but is harmless to plants, fish or other inhabitants and will not harm humans or animals. The color is due to the type of bacteria necessary to biodegrade the more difficult buildup of debris and sludge. The bacteria must first solubilize the sludge before it can be biodegraded. It is the solubilization process which discolors the water. Depending upon

For optimal performance (optional), place the water soluble packets in a bucket of luke warm water (85°F) until the packets are dissolved. Stir the contents of the bucket and add to the pond.

Q. What if the fish eat the packets?

A. The enzymes will not harm the fish. It should not have any appeal for the fish. The contents dissolve quickly and are broken down by the bacteria. If a little would be ingested, it is non-toxic. The fish will help circulate the enzymes if they do ingest any.

Q. If I have leftover packets, what should I do with them?

A. Leftover packets can be used the following season. These do not go to waste. The packets are specific to consume organic leaf matter in the pond, therefore if used in fall, any remaining product can be used in spring for any new leaves blown in during the later part of winter.

Q. If overdosed, can extra enzyme packets hurt my pond?

A. No, it won't hurt anything in the pond. This product is safe and natural.

Q. If I forgot to add the packets when I added the liquid, do I have to start all over?

A. The liquid and packets are a two-step process, independent and complementary to each other. The liquid contains cold-weather bacteria (psychrophilic) to remain active under low temperature conditions, independent of photosynthetic conditions. The dry, water soluble packets contain a blend of cellulase enzymes, cellulase-producing bacteria and a cold weather bacterium. The cellulase enzymes, along with the cellulase-producing bacteria, are the key to accelerating the breakdown of leaves and cellulosic matter all winter long. Whereas they work together in cold weather conditions, they work individually in that the dry water soluble packets are specifically formulated to accelerate the breakdown of leaf matter and the liquid bacteria completes the break down of other organic materials in the pond and the byproducts of the initial steps in the breakdown of the leaf matter.

targeted chores in the pond, some of which are in areas that do not traverse the filter, such as bogs or the bottom of ponds with no bottom drain. The answer to this would be yes, you cannot have too much "good guy" bacteria in the pond. Any excess of the beneficial bacteria will simply die off when the food supply is gone. We recommend the maintenance dosages to preserve the optimum numbers and distribution of bacteria for the best results under the changing conditions of your pond.

Q. If measured wrong, will an overdose harm the pond or its inhabitants?

A. Unlike chemicals, the live bacteria will not harm the pond or inhabitants.

Q. Can more than one MICROBE-LIFT product be used at the same time?

A. MICROBE-LIFT products can be administered together. They are perfectly compatible with each other. Simply follow the directions for usage on the side of the box for each product you use. They are doing different jobs in the pond.

Q. Will a UV light interfere with the bacteria in MICROBE-LIFT?

A. Yes, we recommend that you turn off the UV light for a 48-72-hour period after the initial application and for 24-48 hours after each subsequent application. This is when the organisms are growing most rapidly and when they are the most sensitive to the UV light.

Q. What environments have shown the least results when MICROBE-LIFT was added?

A. Concrete and cement ponds have residual lime and acids in them. The lime may leach out of the concrete for years adversely affecting the bacteria's results if not properly washed and prepared at time of installation.

Q. What will MICROBE-LIFT do for my pond or lagoon?

A. It reduces ammonia levels, nitrogen levels, reduces noxious odors caused by urine, fecal matter, algae, overfeeding, etc., reduces hydrogen sulfide odors, improves dissolved oxygen, reduces build-

up of bird droppings and organic sediment. Also reduces nitrate nitrogen levels and most potential sources of fish toxicity.

Q. How long will it take to see results?

A. Introducing a live bacterial culture to a pond is like introducing any other life form, such as fish. Your pond should be adequately aerated, especially in warm weather, to provide the oxygen needed by your fish and aerobic bacteria. Oxygen uptake by the bacteria will be higher if there is a significant buildup of organic waste in the pond. You should begin to see results in 7-10 days and in 25-30 days you should see complete results. Unlike chemical products which work almost immediately when added to a pond, but become diluted, the active bacteria in MICROBE-LIFT multiply to provide the populations necessary to give the desired effect. Some time is naturally required for this growth to occur. When you plant grass seed you wouldn't expect to mow it right away, would you?

Q. Can MICROBE-LIFT be diluted to extend the product utilization?

A. MICROBE-LIFT should be used as is and not tampered with. The bacteria are grown in the container, and by attempting to dilute it could upset the balance of equilibrium in the bottle and jeopardize the remainder by shortening the shelf life.

Q. How will MICROBE-LIFT make my life easier?

A. These products establish a balance of nutrients in the pond, remove ammonia, nitrogen and other organic waste, which in turn produces cleaner water and a healthier environment for the inhabitants of the pond. It will reduce the manual maintenance requirements of the owner and increase the pleasure of having a pond. As one dealer put it, "It cuts your pond maintenance in half."

Q. How does MICROBE-LIFT clear up the pond water?

A. MICROBE-LIFT/PL has been called an ecosystem in a bottle. By establishing and main-

products?

A. No, we do not list expiration dates on the products. There is a batch number on each that can be traced when necessary. (See shelf-life for more information.)

ENZYME QUESTIONS

Q. What is the difference between enzyme and the bacterial products?

A. Enzymes are proteins that catalyze biochemical reactions. They are specific in nature and only catalyze certain types of reactions. They are not living so do not reproduce. Over time they are broken down or digested as a food source so enzymes only work for a short period of time.

It is better to have bacteria that are living, reproducing and producing the complete complement of enzymes for all the steps necessary to carry out the breakdown of specific materials. Enzymes are also the byproducts of active microbial action enabling them to break down and use the food. They are the catalysts the bacteria use to help absorb food through the cell membranes. The bacteria produce enzymes, much like we do in our own mouths, stomachs and intestines, in the digestive process.

Where enzymes are beneficial is in speeding up what would be the "rate-limiting" step in a sequence of reactions, as we do with the cellulase enzyme in the ML Autumn/Winter Prep and Spring/Summer Cleaner.

Q. How do I apply the water soluble (enzyme) cellulase packets?

A. There are 8 two ounce packets contained in one plastic bag in each ML Spring/Summer Cleaner or 2 two ounce packets in Autumn/Winter Prep quart package. These packets are water soluble and pre-measured for easy application. Take them out of the outer plastic bag and toss the recommended amount of packets directly into pond. In minutes the water soluble case will dissolve and the enclosed sawdust-looking contents (enzyme) will disperse.

products and outside products, such as Algae Fix®?

A. It is unlikely that AlgaeFix® would "sterilize" the pond, i.e. kill 100% of the organisms but it can knock out a large portion of them depending on the dosage. In general, if MICROBE-LIFT is being used as directed, it will maintain a healthy pond system, but when other chemical interventions, such as algaecides, are used, you will need to wait at least 3 days before applying MICROBE-LIFT to the pond in order for the algaecide to dissipate sufficiently to allow the bacteria to grow. Other algaecides could kill off sufficient quantities of the bacteria and in certain cases, can eliminate all the built up bacteria in the pond. Following that you would need to start with a purge dosage and begin anew to develop the biological ecology and balance of the pond.

ODORS

Q. What will MICROBE-LIFT do for my pond or lagoon?

A. It will improve water clarity, reduce ammonia and nitrogen levels, reduce build up of organic sediment, reduce noxious odors caused by fish urine, fish feed, fecal matter, algae, overfeeding, etc, reduces hydrogen sulfide odors and improves dissolved oxygen levels.

Q. Why does the MICROBE-LIFT/PL smell like rotten eggs?

A. The smell is attributable to the natural production of hydrogen sulfide by sulfate reducing bacteria as part of the ecosystem. This provides a source of energy for the purple sulfur bacteria in the product and as a metabolic inhibitor, preserves the product, giving it its long shelf life while in the container.

Q. If I open it and there's no smell, how do I know if it's still good?

A. If it is pinkish or brownish in color, it should be alright. It is definitely bad if it is whitish-grey and has a burnt rubber smell. The bacteria are definitely dead in that case.

Q. Is there a listing of expiration dates on

taining a healthy balance in the pond, and by removing soluble and particulate organic waste matter, the water will obtain clarity otherwise not available. Any small or microscopic debris in the pond will add to turbidity, clouding of the pond and detracting from the overall appearance. With MICROBE-LIFT at work, this is removed by the bacterial action.

POND PRODUCT APPLICATION

Q. How do I apply MICROBE-LIFT products to my pond?

A. The best application is to shake well and add amount of product indicated on the container for your size pond. It can be put in one spot or spread around the edge of the pond by hand or metered dispenser. The end result will be full coverage of the entire pond, but it will become distributed more quickly in a larger pond if applied to different areas.

Q. How do I apply PL/ GEL? How much PL/ GEL do I use in my filter?

A. Just dab it on or spread it across the entire matting. It can be applied to lava rock in a bio-upflow filter or dripped over spring-flo. To help eliminate confusion, it can be applied to filter pads after cleaning for immediate reactivation at the following rates:

80-200 gallons	-2 oz. per pad application
201-500 gals.	-3 oz.
501-1,000 gals.	-4 oz.
1,001-5,000 gals.	-6 oz.

Q. Can more than one MICROBE-LIFT product be used at the same time?

A. MICROBE-LIFT products can be administered together, with the exception of ML/Algaway products and ML/ORC. All MICROBE-LIFT bacterial & enzymatic products are compatible with one another. Simply follow the directions for usage on the side of the box for each product you use. They are doing different jobs in the pond.

Q. If I am using more than one MICROBE-LIFT product, can I overdose with the bacteria?

A. MICROBE-LIFT bacterial products are formulated to work together for the cleanest pond water and healthiest fish and plants. Basically there is no potential for overdose, as it is a beneficial and non-toxic bacteria. However if excess product is added, it becomes less cost effective to the consumer. When there is more bacteria added to the pond than needed, the excess will starve and die off.

The one problem associated with overdosing bacteria, other than economics, is that if there is a lot of organic buildup when you overdose, you can stimulate too much activity and associated oxygen demand, depleting the water of adequate oxygen to support the fish.

Q. If I miscalculate the size of my pond and add too little MICROBE-LIFT, will I have wasted the bacteria?

A. Simply add the additional bacteria amount when you realize the mistake. If you didn't add enough in the initial purge dosage the bacteria will begin working, but will take much longer to show the desired effects. It works a lot better if you use as directed.

Q. Will a UV light interfere with the bacteria in MICROBE-LIFT?

A. Yes, we recommend that you turn off the UV light for a 48-72-hour period after the initial application and for 24-48 hours after each subsequent application. This is when the organisms are growing most rapidly and when they are the most sensitive to the UV light.

Q. Can MICROBE-LIFT be diluted to extend the product utilization?

A. MICROBE-LIFT should be used as is and not tampered with. The bacteria are grown in the container it is sold in, and by attempting to dilute it could upset the balance of equilibrium in the bottle and jeopardize the remainder rather than extend it. It will dilute out the inhibitor so the remaining product will no longer be preserved.

Q. Can MICROBE-LIFT be sprayed into the pond?

A. It is best applied by pouring it by hand, or metering dispenser, but it can also be applied by a sprayer. A low pressure garden sprayer will not harm the bacteria and if it is easier to apply over a large area like this, the user can do that. However, it should be a coarse spray and not a fine spray that would produce a lot of aerosols.

PRODUCT STORAGE

Q. How should MICROBE-LIFT products be stored?

A. Products should be protected from extreme heat and direct sunlight. It can withstand heat up to 105°F before starting to die. A cellar, garage or shed (but not in an attic in the shed) should provide the necessary protection during summer months. The ideal storage temperatures are between 40-105°F.

SHELF LIFE

Q. What is the shelf life for the liquid bacterial products?

A. Approximately 2 years in unopened container, 1 year after being opened if stored properly.

Q. What is the shelf life of the dry products?

A. All of our dry biological products, and the dry bio-products with added enzyme and other support material have an extended shelf life well beyond our two-year stated claim. The dry formulations consist of multiple strains of spore forming microorganisms and these microorganisms can stay in the spore form (dormant state) for an indefinite period of time when properly stored.

The method of microbial activation is two fold: a) the addition of water; b) the presence of waste organic matter. Both of these factors are required to active the microbes and get their biological oxidation process going.

INTERACTION WITH OTHER PRODUCTS

Q. What is the interaction with MICROBE-LIFT