



NOVALEK, INC.

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PRODUCT DATA SHEET

ZymBac Freshwater

Freshwater Nitrifying Bacteria

PRODUCT DESCRIPTION

ZymBac™ Freshwater contains live naturally occurring species of nitrifying bacteria used to remove toxic ammonia and nitrite from aquariums. ZymBac™ may be used during the initial start up period to significantly reduce the amount of time needed to establish populations of nitrifying bacteria to break down the ammonia and nitrites in the aquarium. ZymBac™ has many additional applications. ZymBac™ may be used to reestablish a biological filter after loss of nitrification due to moving the aquarium, use of medications, power outages and many other situations. ZymBac™ may be used to "boost" the biological filter in anticipation of an added bioload such as several new fish being added to the aquarium at one time. Any time filter material is changed, ZymBac™ may be used as a precautionary measure to insure there is no ammonia or nitrite spike. 8oz treats 20 gallons, 16oz treats 40 gallons.

SPECIFICATIONS

Contains live aerobic freshwater ammonia oxidizing bacteria and live aerobic freshwater nitrite oxidizing bacteria.

MODE OF ACTION

ZymBac™ Freshwater contains both ammonia and nitrite oxidizing species of nitrifying bacteria. These bacteria produce their own food from carbon dioxide (chemoautotrophs) and utilize inorganic nitrogenous compounds (ammonia and nitrite) as primary sources of energy. Ammonia oxidizing bacteria use ammonia present in the aquarium from fish urea and waste, uneaten foods, etc as their food source and convert this ammonia into nitrite. The nitrite oxidizing bacteria do the same thing with the nitrite producing nitrate. Nitrate is much less toxic to aquatic life than either ammonia or nitrite and is removed from the aquarium during the course of regular water changes.

Nitrifying bacteria have a limited shelf life inside of bottles because they cannot form spores. For this reason each bottle of ZymBac™ is clearly marked with an expiration date. ZymBac™ will last for up to six months on the shelf if kept at normal room temperature. You may refrigerate ZymBac™ without harm.

In a typical new aquarium setup ZymBac™ used at a recommended dosage will complete cycling in about two to three weeks. Because water chemistry, the amount of ammonia and nitrite present, temperature, feeding and other factors vary from aquarium to aquarium each individual aquarium's cycle time may vary greatly. It is recommended that you use AquaTru Ammonia and Nitrite test kits to accurately determine when the aquarium has finished cycling. Consult with your local fish store about the appropriate number of fish to use when cycling the aquarium. Using greater than label dosage does not guarantee a faster cycling time.

When ZymBac™ is initially added to the aquarium it is free floating in the water. During this time ZymBac™ is vulnerable to being killed if it is exposed to ozone or ultraviolet light. Turn off any UV sterilizers and ozone generators before adding ZymBac™ and leave off for five days after application. During this time the bacteria will settle and adhere to filter media. Ideally filter media for nitrifying bacteria should have a large surface area in an area of high flow. Filter media should not be allowed to accumulate large amounts of detritus and debris because that can cause anaerobic conditions. Nitrifying bacteria do not colonize such areas.

Ideal Conditions

The freshwater nitrifying bacteria in ZymBac™ perform best at in a temperature range from 77°-86°F/25°-30°C. A minimum pH of 6.5 is recommended for best performance at removal of ammonia. pH should not exceed 8.4. The bacteria species in ZymBac™ perform best at dissolved oxygen levels of at least 80%. Freshwater ZymBac™ species of nitrifying bacteria will function in a salinity from 0-6 ppt. For most brackish water aquariums, Saltwater ZymBac™ is the better choice to aid or establish biological filtration.



STABILITY

ZymBac™ freshwater has a shelf life of six months. Each bottle is clearly marked with an expiration date to insure freshness and efficacy. ZymBac™ should not be exposed to temperatures below 32°F/0°C or over 95°F/35°C. Ideally ZymBac™ should be stored at room temperature at all times. ZymBac™ will not survive freezing or overheating. ZymBac™ may be refrigerated without harm, but refrigeration will not extend the shelf life of the product.

COMPATIBILITIES

These freshwater bacteria are 100% non-toxic, non-pathogenic and feed on inorganic ammonia and nitrite. ZymBac™ is non-corrosive and requires no special precautions to handle. These bacteria are not a health hazard to humans, fish, pets, plants or wildlife. ZymBac™ may be used with all of Kordon's water conditioners including AmQuel®, AmQuel Plus® and NovAqua®.

ZymBac™ can safely be used with organic medications such as Kordon's Ich Attack™ and Prevent Ich™ without detriment to the live nitrifying bacteria in ZymBac™.

In order to speed colonization of plastic biomedica such as bio-balls pour NovAqua™ over biomedica to coat the media with a slime coating. The bacteria species in ZymBac™ will easily adhere to the smooth plastic media after the addition of NovAqua™

CONTRAINDICATIONS

ZymBac™ Freshwater is not a medication and is not intended for use treating fish disease. ZymBac™ is to be used as an ammonia and nitrite removing agent. ZymBac™ should not be used in conjunction with any medications, especially antibiotics. Medications will harm the organisms in ZymBac™. Before using ZymBac™ in any aquarium that has been medicated, perform at least a 20% water change and use fresh activated carbon to remove any remaining chemotherapeutic agents. Chlorine and Chloramine will kill the bacteria and ZymBac™ and must be removed from water with AmQuel® or AmQuel Plus® before ZymBac™ can be added to the aquarium. UV sterilizers will also kill ZymBac™ and must be turned off before application and left off for five days after application of ZymBac™.

DIRECTIONS FOR USE

For Routine Usage (after adding new livestock, water change or change of filter pads)

1. Shake well before using
2. Make sure the water that the ZymBac™ is being added to is completely free of chlorine/chloramines by using AmQuel® or AmQuel Plus®. Also, turn off any UV sterilizers before usage and leave off for five days after application of ZymBac™. ZymBac™ may be added directly to the aquarium or to water that is being added to the aquarium.
3. Add 2 capfuls per gallon treated, 2oz (60ml) per each 10 gallons.
4. To increase the speed with which the bacteria will adhere to biomedica, add NovAqua® at recommended dosages directly onto biofilter media.
5. ZymBac™ may be resealed and reused so long as the ZymBac™ is used before the labeled expiration date.

For Use In Starting A New Aquarium/Biofilter

1. Shake well before using
2. Make sure the water that the ZymBac™ is being added to is completely free of chlorine/chloramines by using AmQuel® or AmQuel Plus®. Also, turn off any UV sterilizers before usage and leave off for five days after application of ZymBac™. ZymBac™ may be added directly to the aquarium or to water that is being added to the aquarium.
3. Add 4 capfuls per gallon treated, 4oz (118ml) per each 10 gallons.
4. To increase the speed with which the bacteria will adhere to biomedica, add NovAqua® at recommended dosages directly onto biofilter media.



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For Use In Emergency (after power outage/moving an aquarium or similar circumstance)

1. Shake well before using
2. Make sure the water that the ZymBac™ is being added to is completely free of **chlorine/chloramines** by using AmQuel® or AmQuel Plus®. Also, turn off any UV sterilizers before usage and leave off for five days after application of ZymBac™. ZymBac™ may be added directly to the aquarium or to water that is being added to the aquarium.
3. Add 4 capfuls per gallon treated, 4oz (118ml) per each 10 gallons.
4. To increase the speed with which the bacteria will adhere to biomed, add NovAqua® at recommended dosages directly onto biofilter media.
5. ZymBac™ may be resealed and reused so long as the ZymBac™ is used before the labeled expiration date.

Reestablishing A Biofilter After Using Medications

1. Before using ZymBac™ in an aquarium that has recently been medicated, perform a 20% water change and add fresh activated carbon to the filter. Wait at least 12 hours after the addition of the fresh carbon before using ZymBac™.
2. Shake well before using
3. Make sure the water that the ZymBac™ is being added to is completely free of chlorine/chloramines by using AmQuel® or AmQuel Plus®. Also, turn off any UV sterilizers before usage and leave off for five days after application of ZymBac™. ZymBac™ may be added directly to the aquarium or to water that is being added to the aquarium.
4. Add 4 capfuls per gallon treated, 4oz (118ml) per each 10 gallons.
5. To increase the speed with which the bacteria will adhere to biomedia, add NovAqua® at recommended dosages directly onto biofilter media.
6. ZymBac™ may be resealed and reused so long as the ZymBac™ is used before the labeled expiration date.

CAUTIONS

Keep away from children. ZymBac™ contains no hazardous chemicals or bacteria. If ZymBac™ contacts eyes, rinse with water. If ingested, contact a physician and bring ZymBac™ product container with you. Overdosage up to ten times label dosage is harmless to the aquarium.