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MARINE CARE PROGRAM

Reef Mature Starter Kit

*Complete Supplement pack for the
biological maturation cycle of marine
and reef aquariums*



Red Sea's Reef Mature Starter Kit

Introduction:

Red Sea's Reef Mature Starter is a complete step by step program that prepares a new marine aquarium for the long term success of an artificial reef.

Typically the preparation process that is often called 'cycling' establishes a thriving colony of aerobic nitrifying bacteria that convert the toxic waste products to nitrate. This program however completes the biological maturation process by also establishing thriving colonies of anoxic (de-nitrifying and phosphate harboring (PHB)) bacteria. Furthermore the program provides the necessary conditions that will promote the growth of coralline algae and other micro fauna found in live rock and within a sand bed.

The complete reef maturation program, which requires a period of 21 days, will result in a fully matured system that will be biologically ready for stocking all animals including delicate SPS corals.

This manual provides detailed daily instructions for implementing the program. A detailed explanation of the biological processes in the maturation process and tips for implementing the Reef Mature program can be found on Red Sea's website.

Notes:

This kit includes all supplements you need to mature the system. Do not add any other supplements or livestock (dead or alive) until advised to do so as part of the program.

The Reef Mature program requires the use of accurate test kits for measuring pH, KH, Ammonia, Nitrite and Nitrate. All of these tests with the appropriate level of accuracy can be found in Red Sea's Marine Care Test kit.

Contents:

- **Nitro Bac** – a concentrated blend of nitrifying and de-nitrifying bacteria spores to seed the live rocks, substrate and the bio-media in a new tank.
- **Bacto-Start** – a balanced blend of nitrogen and phosphorus components that simulate the natural waste products of an active aquarium, enabling a controlled development of the aerobic and anoxic bacteria.
- **NO₃:PO₄-X** - a unique complex of carbons and other organic bonded elements that are used by anoxic bacteria for the accurate control of algae nutrient (nitrate and phosphate) levels.
- **KH-Coralline Gro** – a concentrated marine buffer complex, fortified with the specific minor and trace elements that promote the growth of coralline algae and other beneficial micro fauna.

Note: Coralline algae and micro fauna will only develop if they are introduced to the system such as on live rocks.

Directions for use

General Instructions

The water levels in marine aquariums drop on a daily basis due to evaporation. The water evaporates but the salts remain and therefore the salinity of the water in the tank will increase. Compensate for the evaporation on a daily basis by topping up the system with RO water.

1. Before carrying out any water testing always check the salinity and make adjustments as necessary. If you have made adjustments to the water wait 10 minutes for the water parameters to stabilize.
2. Test only with high resolution test kits such as Red Sea's Marine Care Test Kit.

3. The dosing instructions of the Reef Mature supplements are based on treating 100 liters/25 gallons of water. Estimate your total volume of water (aquarium & sump less volume of live rocks etc) to calculate the correct dosage for your system.
4. Supplements should be added to the sump. If you do not have a sump, add the supplements slowly to an area with high water flow to prevent direct contact with livestock.
5. Record all parameter readings and quantities of supplement added.
6. Add each of the 4 supplements as instructed and according to the advised dosages. Higher or lower dosages can have detrimental effects.

Notes:

NO₃:PO₄-X must be added consistently on a daily basis to prevent starvation and destruction of the nitrate and phosphate reducing bacteria. If you miss one or more days of using **NO₃:PO₄-X** do not add the amount that you have missed and resume the dosing at the current daily dose.

If you miss one or more days of using **KH-Coralline Gro** buffer add the complete amount that you have missed. If you already have corals in the system do not raise the alkalinity by more than 0.5 meq/l (1.4 dKH) per day.

Day 1: System Set Up

Before implementing the Reef Mature program ensure the following conditions.

1. Prepare your salt water to a salinity of 33-35 ppt (1.023-1.025 at 25 °C). Maintain the water temperature at a steady 26-28 °C and ensure water circulation of at least 10 times the tank's volume per hour.
2. Add cured live rocks and clean substrate. We recommend a depth of 5-7.5cm / 2-3" of an Aragonite-based coral sand (2-4mm diameter) substrate. Place the live rock in the tank by building a stable structure that provides the rock with good water circulation. If you do not have live rock or sand bed, alternative porous filter media must be made available for the aerobic and anoxic bacteria.
3. Filtration must include a Protein Skimmer with a turnover of at least 3 x system volume per hour and a water:air ratio of at least 3:1.
4. Do not use a de-nitrification system or any nitrate or phosphate removing materials.
5. Set the lighting period for 10 hours per day.
6. Run the system for 24 hours.

Day 2:

1. Check and adjust temperature and salinity.
2. Test and record the pH and KH/Alkalinity. If the KH is less than 8.4 dKH (3 meq/l) add **KH-Coralline Gro** buffer, calculate dosage as shown on the label.
3. Add 20 ml of **Nitro Bac** per 100L (25gal) of water.
4. Add 10 ml of **Bacto-Start** per 100L (25gal) of water.
5. Add 3 ml of Red Sea's **NO₃:PO₄-X** per 100L (25gal) of water.

Day 3:

1. Check and adjust temperature and salinity.
2. Test and record the pH and KH/Alkalinity. DO NOT add KH-Coralline Gro
3. Test and record the Ammonia, Nitrite & Nitrate levels. Approximate readings should be as follows: Total Ammonia 1 ppm, Nitrite 0.1 ppm, Nitrate 10-15 ppm.
4. Add 10 ml of **Nitro Bac** per 100L (25gal) of net water volume.
5. Add 3 ml of Red Sea's **NO₃:PO₄-X** per 100L (25gal) of water.

Day 4-5:

Add 3 ml of Red Sea's **NO₃:PO₄-X** per 100L of water per day.

Note:

At this point different types of green filamentous algae, cyanobacteria and diatoms will start to bloom. This is a natural part of the process and should disappear or be under control by the end of the maturation program.

Day 6:

1. Check and adjust temperature and salinity.
2. Test and record the pH and KH/Alkalinity. Calculate the **KH-Coralline Gro** buffer required to achieve 8.4 dKH (3 meq/l) according to the dosage chart on the bottle. Note: this dosage represents the KH uptake of the aquarium over the previous 4 days. Add the "4 day dosage" to the system. Divide this "4 day dosage" by 4 and use as the daily dosage for the next week.
3. Add 3 ml of Red Sea's **NO₃:PO₄-X** per 100L of water.

Day 7:

1. **Water change** – replace 5% of the system water with new saltwater.
2. Check and adjust temperature and salinity.
3. Test and record the Ammonia & Nitrite levels. Approximate readings should be as follows: Total Ammonia <0.25 ppm, Nitrite <0.05 ppm.
4. Add 10 ml of **Bacto-Start** per 100L of water.
5. Add 5 ml of **Nitro Bac** per 100L of water.
6. Add 3 ml of **NO₃:PO₄-X** per 100L of water.
7. Add calculated daily dosage of **KH-Coralline Gro**.

Day 8-9:

1. Check and adjust temperature and salinity.
2. Add 3 ml of **NO₃:PO₄-X** per 100L of water.
3. Add calculated daily dosage of **KH-Coralline Gro**.

Day 10:

1. Check and adjust temperature and salinity.
2. Test and record the Ammonia, Nitrite & Nitrate levels. Approximate readings should be as follows: Total Ammonia 0 ppm, Nitrite 0 ppm, Nitrate 10 ppm.
3. Add 5 ml of **Bacto-Start** per 100L of water.
4. Add 5 ml of **Nitro Bac** per 100L of water.
5. Add 3 ml of **NO₃:PO₄-X** per 100L of water.
6. Add calculated daily dosage of **KH-Coralline Gro**.

Introduce the “cleaning crew” to the aquarium.

Recommended species: Brittle star starfish, detritus feeding sea cucumbers and several herbivorous snails, such as *Asraea Tuncta* or Turban snail. These ‘reef janitors’ play an important long-term role in keeping your aquarium in good shape. They help control algae, remove detritus, and scavenge for scraps of food that fall to the bottom or between rocks. They play an especially important role if your tank has substrate, keeping it clean and aerated.

Day 11-13:

1. Check and adjust temperature and salinity.
2. Add 3 ml of $\text{NO}_3:\text{PO}_4\text{-X}$ per 100L of water.
3. Add calculated daily dosage of **KH-Coralline Gro**.

Day 14:

1. **Water change** – replace 5% of the system water with new saltwater.
2. Check and adjust temperature and salinity.
3. Test and record the Nitrate. Approximate readings should be 5 ppm.
4. Add 3 ml of $\text{NO}_3:\text{PO}_4\text{-X}$ per 100L of water.
5. Test and record the pH and KH/Alkalinity.
Calculate the adjusting dosage of **KH-Coralline Gro** buffer required to achieve 8.4 dKH (3 meq/l) according to the dosage chart on the bottle and add this dosage to the system. If the adjusting dosage is significantly different from the previous average daily dosage amend (increase/decrease) the daily dosage as appropriate.

Introduce herbivorous fish (1 per 100 L) to the aquarium.

Day 15-20:

1. Check and adjust temperature and salinity.
2. Add 3 ml of $\text{NO}_3:\text{PO}_4\text{-X}$ per 100L of water.
3. Add amended daily dosage of **KH-Coralline Gro**.

Day 21:

1. Water change – replace 5% of the system water with new saltwater.
2. Check and adjust temperature and salinity.
3. Test and record the Nitrate. Approximate readings should be 2 ppm.
4. Add 2 ml of $\text{NO}_3:\text{PO}_4\text{-X}$ per 100L of water.
5. Test and record the pH and KH/Alkalinity. Calculate the adjusting dosage of **KH-Coralline Gro** buffer required to achieve 8.4 dKH (3 meq/l) according to the dosage chart on the bottle and add this dosage to the system.

Day 22+

Gradually introduce more fish and corals to the system.

Test the pH, KH/Alkalinity and Nitrate on a weekly basis.

IMPORTANT - Continue dosing $\text{NO}_3:\text{PO}_4\text{-X}$ on a daily basis and adjust the dosage (according to the dosage chart on the bottle) until the nitrate level is stable between 1 and 2.5 ppm.

Note:

The actual Nitrate level after the first 21 days is dependent on the growth rate of denitrifying bacteria in each system. It may take a few weeks for the Nitrate levels to lower to the desired level.

Marine Fish system:

Continue dosing the **KH-Coralline Gro** buffer as required to maintain 8.4 dKH (3 meq/l) according to the dosage chart on the bottle.

In the event that the Nitrate level drops below 1ppm cut the daily dose of **NO₃:PO₄-X** by 50%, test Nitrate 2 times per week and adjust the dosage accordingly until it stabilizes between 1 and 2.5 ppm.

Mixed, SPS Dominant or ULNS Reefs:

Before introducing LPS or SPS corals adjust all water parameters as recommended in Red Sea's Reef Care Program and start the appropriate testing and supplementing regime.

Start using Red Sea's Foundation™ KH/Alkalinity (Buffer) supplement instead of the **KH-Coralline Gro**.

If you are planning on SPS or ULNS systems see the full instructions provided with Red Sea's **NO₃:PO₄-X** and use Red Sea's Algae Control Pro multi test kits to accurately monitor Nitrate and Phosphate.

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