

# Basics of Marine Aquarium Conditioning

The marine aquarium environment is relatively well defined and reflects the various salt formulations on the market. The principal factors that need to be managed are pH, alkalinity, ionic integrity, trace supplementation, stress, and the avoidance of chlorine and chloramine.

When selecting a salt mix, avoid those accompanied by exaggerated claims and undue emphasis on trace elements. Trace elements in salt should be complexed for stability and availability. If needed, as in a reef aquarium, they should be replenished with a supplement. Vitamins are too labile to withstand the harsh environment of a dry salt mix and should not be part of a salt mix. If needed, they should be supplied with a supplement. Fish and many invertebrates obtain trace elements, vitamins, and amino acids from food, and quality foods contain an adequate supply. Except for the culture of macro-algae, corals, and some invertebrates, supplements are not needed. If used, caution should be exercised, since many trace elements can be toxic at slightly increased concentrations. Salts with excessive calcium (>420 mg/L), currently a fad, should be avoided, since such salts promote alkalinity problems. There are several sound salt mixes on the market, including Seachem's Reef Salt™, that provide a stable and sound environment.

Seachem's Trace™ is a concentrated dry blend of essential trace elements, vitamins, and amino acids, designed to be used sparingly to safely promote macro-algae culture and to stimulate appetites in the marine aquarium. Seachem's Reef Builder™ is formulated to increase alkalinity without immediate impact on pH, while providing maintenance dosing of essential calcium and magnesium. Reef Complete™ and Reef

Advantage™ are concentrated sources of calcium and proportionate strontium and magnesium for restoring depleted quantities of these elements in the reef aquarium. Reef Calcium™ is a concentrated organic calcium supplement designed to promote accelerated growth of corals. Reef Plus™ is a vitamin supplement, rich in vitamins C and B12, with added potassium, molybdenum, iodide, iron, and other ingredients found useful in the promotion of reef health. Reef Strontium™ safely provides strontium and molybdenum for the enhancement of coral growth, but is not needed if Reef Complete™ is used. Reef Iodide™

is a concentrated complexed iodide supplement for invertebrates, but is not needed if Reef Plus™ is used. The use of Seachem's family of reef products, along with Marine Buffer®, will provide ideal culture conditions for reef corals.



Marine Buffer® adjusts pH to 8.3 and maintains it. Unlike some competing products, it will not exceed pH 8.3 in seawater. It is formulated scientifically to have a pK=8.3 for maximum buffering efficiency at pH 8.3, while also not disrupting the natural ionic balance of marine water with prolonged use. Unlike sodium carbonate or sodium bicarbonate, which only increase buffer capacity, Marine Buffer® raises pH in a controlled and lasting manner, adjusting the pK to 8.3 and increasing both buffer efficiency and capacity. It dissolves readily and does not disrupt water clarity. In ionically unbalanced water, a temporary precipitate forms, making Marine Buffer® a useful indicator of when water changes are needed. Marine Buffer® contains a natural balance of sodium, magnesium, calcium, potassium, and other cationic salts of carbonate, bicarbonate, and borate, formulated for enhanced efficiency and lasting buffer capacity at pH 8.3. It maintains optimum alkalinity and interacts

with marine water to help preserve a balance of calcium, magnesium, and trace elements that enhance safely the culture of macro-algae and corals.

To remove chlorine, chloramine and ammonia from municipal water sources, Seachem offers Safe™ and Prime®. Both remove chlorine, chloramine, and ammonia. Safe™ is dry and is used in a single easy step. Prime® is a complete conditioner that also provides essential ions and stimulates natural slime coat production. Prime® should be the choice conditioner when setting up a new tank, adding or changing water, or transporting fish. Unlike some competing products, it does not lower pH, nor does it contain polymeric ingredients that disrupt skimmer activity. No other product is required to make the water safe, even in high chloramine situations.

The substrate for the marine or reef aquarium must be mostly insoluble under normal aquarium conditions. One of the better and more economical substrates is crushed oyster shell (used in poultry feed). Dolomite is suitable. Other crushed shells and coral sand are also suitable. Soluble or so-called “buffering” substrates such as crushed coral should be avoided, because such substrates release into the confines of the tank an uncontrolled quantity of minerals, causing a pH drop and an inability to maintain pH, ultimately buffering at 7.6.

All Seachem products have the advantage of performance based on sound chemistry and economy based on concentrated formulations.