

Calcium Supplementation Overview

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One of the most important aspects of proper reef care is [calcium supplementation](#). Calcium is vital for the health and growth of corals and plays a crucial role maintaining high pH needed in marine systems. Calcium is present in a variety of natural sources such as [live rock](#) and [aragonite substrate](#). As they dissolve they release the calcium in a biologically available form into seawater.

The amount of calcium provided through these means is sufficient for fish-only or lightly stocked reef aquariums where the biological demand for calcium is relatively low. However, in heavily stocked reef aquariums, calcium is utilized rapidly and supplementation is necessary to replenish these levels.

Calcium Supplementation & Alkalinity

Calcium supplementation poses a unique challenge due to a variety of chemical interactions that occur when introduced to saltwater. If calcium levels get too high (over 500ppm), there is a tendency for alkalinity to drop. This affects the buffering capacity of aquarium water and without adequate buffering, pH levels are susceptible to fluctuations. Conversely, if alkalinity gets too high, calcium levels tend to drop as calcium precipitates out of solution. A fine balance must be struck between the various aspects of saltwater to maintain ideal calcium levels.

Commercially available products help make calcium supplementation easier by taking out the guesswork. However, be sure to [test and monitor](#) calcium levels at least every two weeks, preferably once a week, to maintain the ideal calcium level at 350-450ppm. While testing calcium levels, remember to test and monitor alkalinity as well, since calcium and alkalinity levels influence one another.

The most common method of calcium supplementation involves the use of [Kalkwasser](#) preparations, [balanced liquid calcium supplements](#) or through the use of [calcium reactors](#).

[Kalkwasser](#)

German for "lime water," Kalkwasser is simply calcium hydroxide dissolved in water to create a highly concentrated solution. It is used to both supplement calcium and to maintain high pH levels in reef aquariums of all sizes. It is extremely popular since it is readily available, inexpensive and easy to use. However, due to its very high pH (12.00+), the prepared kalkwasser solution must be introduced slowly through a [dosing system](#) to prevent drastic increases in pH. Dosing systems vary from [electronic units](#) to simple [gravity fed units](#) similar to drip IV units used in hospitals. Though the price of these units may vary, they utilize the same principle where the prepared kalkwasser solution is slowly dripped into the main aquarium or sump from a reservoir.

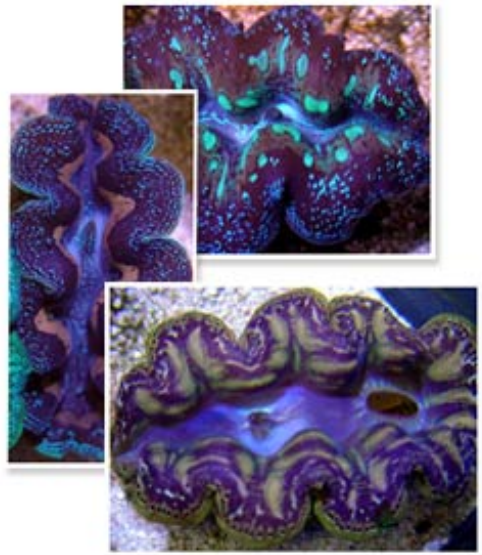
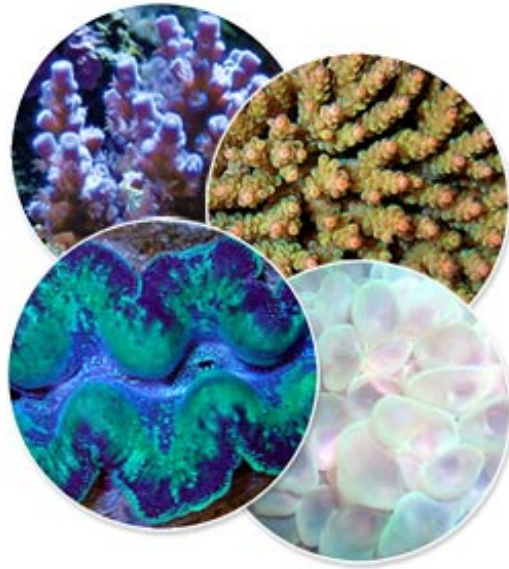
[Balanced Liquid Calcium Supplements](#)

Balanced Liquid Calcium supplements take convenience to the next level. These supplements safely increase calcium levels without affecting alkalinity and vice versa. Manufacturers have devised two-part formulations capable of maintaining both high calcium levels and alkalinity without causing negative reactions. If used per manufacturer's recommendations, there is little chance of overdosing or shocking the aquarium inhabitants. Liquid calcium supplements are extremely convenient and are ideal for smaller reef aquariums.

[Calcium Reactors](#)

Sophisticated devices such as calcium reactors help automate calcium supplementation in large or heavily stocked reef aquariums. These systems are generally comprised of a [calcium reactor](#), [circulation pump](#), [CO2 delivery system](#), [calcium media](#), and a [pH controller](#). CO2 injected into the reactor chamber filled with the calcium media creates an acidic environment that slowly dissolves the media. The dissolved calcium is then mixed with saltwater and the resulting solution is slowly dripped into the main aquarium. Calcium reactors are very precise means of maintaining calcium levels within reef systems with high calcium demands.

There are many ways to supplement calcium depending on the size and



stocking level of a particular reef system. Regardless of the method of supplementation, it is crucial to test calcium levels on a regular basis. Calcium supplementation is part of a dynamic and organic process in which calcium requirements increase as coral colonies (both soft and stony), coralline algae, and other organisms that actively use calcium grow. Regular testing and monitoring provide you with insight regarding the rate which corals are utilizing calcium and allow you to maintain the ideal levels for a healthy, beautiful coral garden.



We Recommend:

- [Kalkwasser Calcium Supplement](#) replenishes calcium, maintains alkalinity and precipitates phosphate for a cleaner, healthier aquarium.