Table 2

Shows the correct balance of dKH / alkalinity against calcium level.

dKH	Alkalinity mEq/l	Balanced Ca
4.50	1.61	393
4.75	1.70	395
5.00	1.79	397
5.25	1.88	398
5.50	1.96	400
5.75	2.05	402
6.00	2.14	404
6.25	2.23	405
6.50	2.32	407
6.75	2.41	409
7.00	2.50	411
7.25	2.59	413
7.50	2.68	414
7.75	2.77	416
8.00	2.86	418
8.25	2.95	420
8.50	3.04	422
8.75	3.13	423
9.00	3.21	425
9.25	3.30	427
9.50	3.39	429
9.75	3.48	431
10.00	3.57	432
10.25	3.66	434
10.50	3.75	436
10.75	3.84	438
11.00	3.93	439

Distributed Worldwide by
D-D The Aquarium Solution Ltd
D-D The Aquarium Solution USA LLC

For more info visit our website: **www.theaquariumsolution.com**

The Aquarium Solution

D-D H_2Ocean Pro+ Aquarium Salt

Mixing Instructions

Recommendations

- D-D recommends the use of reverse osmosis water (R.O. water) to remove many salts from the water such as phosphate and nitrate which can fuel the growth of nuisance algae.
- Salted water should ideally be made up 24 hours before it is required to allow proper mixing and balancing of the salt.
- The salted water should be aerated before use to allow the pH and oxygen level to rise to the correct aquarium levels.
- Never add salt directly to an aquarium containing animals.
- Always use clean, non-toxic utensils and containers for mixing and storage of the water.

Mixing

1. Use RO, distilled or soft dechlorinated tap water for preparation of your salt solution.
2. Add 1 kg of H_2Ocean Pro+ Salt to 25 liters of water. Always add the salt to the water to prevent super-saturation of the salt and possible precipitation of the calcium from solution.
3. Mix vigorously and aerate until all of the salt has dissolved and the pH has stabilized to 8.2 – 8.4.
4. If required add more salt or water to achieve correct S.G.

Salinity

The recommended salinity for a reef aquarium is 35.5 ppt which equates to a specific gravity (S.G) of 1.025 at 25°C.

(Note that S.G. varies with water temperature - see table overleaf)

Variation of Specific Gravity with Temperature

Specific gravity varies with temperature. The warmer the water, the less dense the solution becomes and therefore the lower the S.G.

When mixing up a salt solution, the pre-salted water is often at a lower temperature than the aquarium water and therefore it is helpful to know the equivalent S.G of a salt solution mixed at that lower temperature.

Example:

If we assume that the goal is to produce water with an S.G. of 1.025 at 25°C but that the starting water has a temperature of only 18°C.

By using the chart below we can see that for water at 18°C we need to make a solution with a measured S.G. of 1.0268 which when warmed to an aquarium temperature of 25°C will expand and the S.G. will fall to the correct level of 1.025.

Salinity	Temp. (°C)	Hydrometer calibrated at 25°C
35.5 ppt	18	1.0268
	19	1.0264
	20	1.0262
	21	1.0260
	22	1.0258
	23	1.0256
	24	1.0253
	25	1.0250
	26	1.0246

Technical note

H_2Ocean Salt is made from solar evaporated natural refined materials that may contain small amounts of inert insoluble components. During saltwater preparation these insoluble components are sometimes seen to accumulate on the water surface as a fine brownish INORGANIC film that should not be confused with the “ORGANIC bio-film” that accumulates at the surface of normal salt water aquariums. Research has shown that this inorganic film actually contributes to the general water quality by acting as a flocculent, binding small and long chain soluble organic polymers, floating bacterial films and free ortho-phosphate molecules and allowing them to be more easily removed from the aquarium water by the protein skimmer.

Calibration of Measuring Equipment

It is important to note that equipment for measuring S.G. is calibrated to give a reading at a specific temperature and that different types of equipment are often calibrated at different temperatures. Hydrometers for example are often calibrated at 25°C whereas refractometers are usually calibrated at 20°C.

It is important to take this information into consideration when measuring your final specific gravity.

Calibrating a D-D ATC Refractometer.

The D-D refractometers are auto temperature compensating which actually means that once correctly calibrated they can be used to read solutions regardless of what temperature the equipment is and not that it will give the correct reading at a range of different water temperatures.

The sample of water used for testing is so small that it will soon equilibrate with the temperature of the refractometer and not the other way round.

When calibrating the refractometer it is important that the instrument and not the water sample tested is at 20°C.

Once calibrated the instrument can be used at a range of equipment temperatures, (assumed to be the same as the room temperature) but will always give you a reading corrected to 20°C.

From the chart opposite we see that when using a refractometer, (calibrated at 20°C), we should be aiming for a reading in our aquarium of 1.0262 if we intend to have a S.G. in the tank of 1.025 at 25°C.

If the aquarium is adjusted to 1.025 with a refractometer then the true specific gravity will in fact be in the order of 1.024.

Balanced Calcium Level

The calcium level within your aquarium should always be in balance with the alkalinity or dKH. This ratio changes as the calcium level increases.

The table on the back page shows the relationship of dKH or alkalinity against a range of different calcium levels.

Example:

At a measured calcium level of 400mg/lt, the correct alkalinity should be 1.96 or a dKH of 5.5.

At a measured calcium level of 439mg/lt, the correct alkalinity should be 3.93 or a dKH of 11.

The calcium level in your aquarium should be maintained between 400 and 420mg/lt as higher levels may cause the calcium to precipitate and drop out of solution.