

Total Alkalinity

Total Alkalinity (Buffering Capacity) (KH, Alkalinity) refers to waters ability to keep the pH stable as acids or bases are added. pH buffering capacity are intertwined with one another; although one might think that adding equal volumes of an acid and neutral water would result in a pH halfway in between, this rarely happens in practice. If the water has sufficient buffering capacity, the buffering capacity can absorb and neutralize the added acid without significantly changing the pH level. Conceptually, a buffer acts somewhat like a large sponge. The "sponge" absorbs the acid without changing the pH much. The "sponge's" capacity is limited however; once the buffering capacity is used up, the pH changes more rapidly as acids are added.

Buffering has both positive and negative consequences. On the plus side, the nitrogen cycle produces nitric acid (nitrate). Without buffering, your pool's pH would drop over time (a bad thing). With sufficient buffering, the pH stays stable (a good thing). On the negative side, hard water often almost always has a large buffering capacity. If the pH of the water is too high the buffering capacity makes it difficult to lower the pH to a more appropriate value. Naive attempts to change the pH of the water usually fail because the buffering effects are ignored.

How much buffering does your pool need? The proper alkalinity level for a Fiberglass surface is 125 ppm to 150ppm.

Low total alkalinity waters make pH control difficult because of the lack of buffering capacity (or poor resistance to ph change). Alkalinity must be increased in these waters to offset the possibility of the water reverting to acid.

Many waters are of high total alkalinity (buffering capacity) and high pH levels. To get these waters into the swimming pool "comfort zone" it is necessary to destroy a portion of the alkalinity so that the pH can be lowered. This can be accomplished by the addition of muriatic acid.