Alkalinity & Calcium Hardness

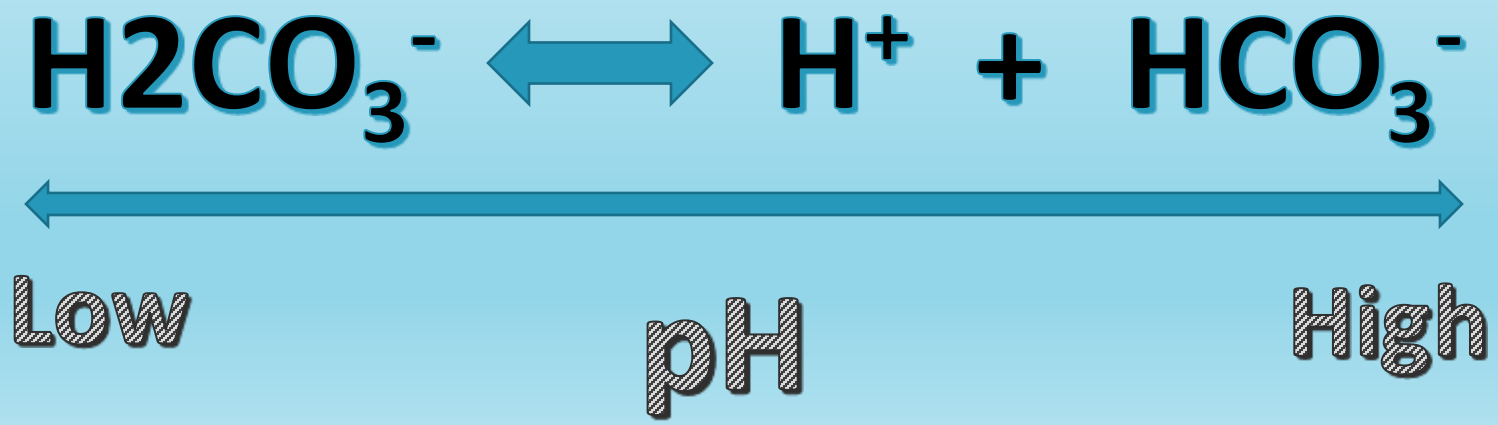
Washington State Department of HEALTH

Important Minerals

Water Recreation Program

ALKALINITY

- Alkalinity is a measure of certain minerals in the water and represents the water's ability to resist changes in pH – Alkalinity is a pH buffer
  - At normal pool pH, alkalinity is primarily Bicarbonate:



Primary Disinfectants (CHLORINE)

Product	% Available Chlorine	pH in 1% solution	pH Effect	Appearance
Gas Chorine	100%	0	Lowers pH	Gas
Sodium Hypochlorite	10-12.5% Household bleach 3-5%	9-14	Raises pH	Liquid
Calcium Hypochlorite	47-78%	8.5-11	Raises pH	Ganular, tabs, briquet
Lithium Hypochlorite	35%	10.8	Raises pH	Granular
Trichlor*	90%	2.8-3.5	Lowers pH	Granular & Tabs
Dichlor*	56-63%	6.5-6.8	Neutral	Granular
Bromine (BCDMH)	27%	4.8	Lowers pH	Granular, Tabs

*These chlorine products are sun stabilized – they contain cyanuric acid

ALKALINITY

- Build alkalinity by adding Sodium Bicarbonate
- Adjust alkalinity first
- The recommended Range is 80 – 120 ppm
- If your disinfectant drive pH down the higher end of the range might work better
- If your disinfectant drives pH up, the lower part of the range might work best.

Calcium Hardness

- The term “hard water” comes from the fact that in mineral rich waters it is hard to make soap bubbles
- The most important hardness mineral for pool operators is calcium hardness
- Too little calcium and water is corrosive; too much and it will deposit scale

Calcium Hardness

- Calcium hardness should be between 200 – 400 ppm
- Increase calcium hardness by adding Calcium Chloride
- Reducing calcium hardness requires diluting it out by dumping water and adding fresh water.

Questions?

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