



Pool Chemical Information

- **Acid**

- o Acid is used mainly on salt pools to lower the pH. When the pH and alkalinity are out of balance, the chlorine is significantly less effective. The pH should be balanced between 7.4-7.6. Chlorinating with a salt water chlorinator produces a high pH (11.8). Without a weekly dose of Acid, salt systems will increase the pH to 7.8-8.2 or greater. A high pH can cause the pool to scale, and the chlorine would be locked up by the basicity. Without the use of Acid the pH can potentially ruin the salt cell in a few months.

- **Algaecide**

- o Algae are a microscopic single cell plants. While they are not directly harmful or toxic, they are unattractive in swimming pools since they discolour the water, usually green, which is unpleasant for swimmers. The vinyl can also become slippery if algae are stuck to it. As they are plants, they bloom in the same conditions as plants do. They require nitrogen, phosphorus and potassium. They also like sunlight as it is essential for photosynthesis. This is where chlorophyll, which causes the green colour, utilises light energy and converts carbon dioxide into organic compounds essential for growth while releasing oxygen. Nitrogen is usually introduced into the water by bather contamination. Algaecide is the strongest available chemical we have, in conjunction with granular chlorine, to fight against algae break outs. This product can be used as a weekly preventive measure or as a concentrated dose to remove visible algae. There are more concentrated and less concentrated forms of the product depending on situation.

- **Alkalinity Levels**

- o Alkalinity is the existence of alkaline, or acid neutralizing, minerals in water; usually carbonate, bicarbonate, and hydroxides. The measure of the alkalinity is not the same measurement as the pH, but the alkalinity does directly affect the pH level. When a base is added, the alkalinity will increase and the pH will also be slightly increased. The alkalinity should ideally fall between 120 and 150 parts per million. When closing a pool, the alkalinity should be greater than 100 parts per million. The alkalinity is constantly falling, and usually needs to be attended to once a month or more. Rainfall, bather use, and topping up the pool are in part responsible for the drops in alkalinity. In the event that the water is not being tested or the results are ignored, the liner and the equipment can be badly damaged. If the pump is circulating water with low alkalinity through a heater, the copper lines in the heat exchanger are often the first thing to be damaged. This is usually noticed once the heater begins leaking from the inside creating a puddle underneath. At this point, the heater will need complete replacement, along with the filter sand, pool water and sometimes the liner. If low alkalinity water is just sitting in the pool (not circulating), it is slowly damaging the liner by eating away at the vinyl. This is why it is important to close the pool with an alkalinity greater than 100 parts per million.

- **Bagged Pool Salt**

- o Salt water chlorination is a process that uses dissolved salt to chlorinate the pool (2,800–6,000 ppm; Hayward is 3000 and Pentair is 3400). The salt cell uses electrolysis to break down the salt. This results in a chemical reaction that produces hypochlorous acid, and sodium hypochlorite. This is the sanitizer that is cleaning the water. It is important to understand that a saltwater pool is not chlorine-free; it simply utilizes a chlorine generator instead of direct addition of a chlorine stick or puck. For the chlorine generator to work, an ideal salt level must be maintained.

- **Bromine Pre-Treat**

- o Bromine Pre-Treat is used to establish a bromide reserve in pools using brominating compounds as the water disinfectant. The pre-treat assures all available sanitizers in the water will be active bromine. This product can be used in the spring time and if a bromine pool is having trouble retaining acceptable bromine levels.

- **Bromine Tablets**

- o Bromine tablets are an alternative sanitizer option that is used on a weekly basis. Sanitizers are chemicals that have to be present in the pool and spa water at all times (as per Health Canada). By law there must be a certain minimum amount (residual) of sanitizer in your water. An 18KG bucket contains approximately 18 sleeves of tablets which weight about 1KG each. Two to four sleeves per week are required depending on the outside temperature, use, weather conditions, and size of the pool.

- **Calcium Levels**

- o High or low levels of calcium hardness can cause problems, so the recommended level for calcium hardness is around 200 parts per million. Total hardness in the context of pool water refers to the total mineral content of the water. This is made up of calcium, magnesium, iron, manganese and other elements. These elements are present in the water used to fill the pool, and the levels can increase through the use of regular pool chemicals such as chlorine composed of calcium hypochlorite. If the calcium hardness is too low, the water becomes corrosive and results in the etching of the pool's surfaces. Metals corrode pool equipment, pipe fittings and pump connections. As a result, the pool's walls and floor can stain. Low calcium hardness can easily be increased using calcium chloride. If the calcium hardness is too high, the result will be scale formation on all pool surfaces. The filter and pipes become clogged, reducing water flow and filtration efficiency. The water becomes cloudy and swimmers complain of eye irritations. Reducing calcium hardness is very difficult. Either replace some or all of the water in the pool, or add chemicals that will keep the calcium in solution and prevent it from depositing out.

- **Chlor Out Tabs**

- o Chlor our tabs are dechlorinating tablets that are required for chlorine pools in the city of Toronto. Toronto by-laws do not allow chlorinated water to be backwashed or pumped onto the street. These tablets remove chlorine from the water before it runs out of the backwash line.

- **Chlorine Sticks/Pucks**

- o Chlorine sticks are a sanitizer option that is used on a weekly basis in order to maintain a level of 1 to 3 parts per million. Sanitizers are chemicals that have to be present in the pool and spa water at all times (as per Health Canada). There always needs to be a certain minimum amount, called a residual, of sanitizer in your water. Each puck is approximately 200g. The amount of pucks required to obtain an ideal 1-3 parts per million varies from two to six pucks per week depending on a number of factors. These factors include, but are not limited to weather, frequency of use, water temperature, air temperature, falling leaves, grass clippings, and the amount of time the pool is circulating for each day. If your pool is out of balance the effectiveness of the chlorine sticks is dramatically reduced.

- **Clearing Enzymes**

- o There are powerful chemicals that are ideal for fast cleanup of dead algae, pollen, and other forms of organic contamination. They contain a powerful natural enzyme and botanical blend with an organic polymer clarifier. It cleans the filter as it cleans the pool of organics.

- **Granular Chlorine**

- o Chlorine is a naturally occurring element. Hypochlorite is a chemical compound containing chlorine in an oxidized state, which means that it is without electrons. There are three different types of hypochlorite when in granular form. The type we use is called calcium hypochlorite which has a quantity of 65% available chlorine; the greatest level available. In this state, the chlorine is unstabilized. Stabilizer is Cyanuric acid (CYA), and is used to slow down the breakdown of available chlorine by ultraviolet

rays in sunlight. This chemical is used to shock the pool. It is always used during the opening and closing of the pool, and can be used throughout the season to fight algae breakout. It will increase the total amount of chlorine in the pool and can balance the amount of free chlorine you have available.

- **Oxidizer**

- o An oxidizer works with sanitizers to purge your pool water of contaminants. Sanitizers attack things like algae and bacteria, but they work inadequately against waste products such as sweat, skin oil, shampoos, soap and urine. This is where you need separate oxidizers. Oxidizers destroy these contaminants by breaking down its structure, thus rendering them vulnerable. The sanitizers can then attack and destroy the organisms.

- **pH**

- o pH, or potential of hydrogen, is a figure expressing the acidity or alkalinity of an aqueous solution (any mixture where H₂O is present in the greatest quantity) on a logarithmic scale (a measurement where each unit increase represents an actual exponential increase). A pH level of 7.0 at 25 degrees Celsius is considered to be neutral in chemistry. A pH level of 7.5 is considered to be perfect (7.4 to 7.6 are acceptable) when measuring pool water. This is because we balance the pH of pool water to the same level as the human eye. When the pH (and alkalinity) is out of balance, the chlorine is significantly less effective. A high pH can cause the pool to scale, and the chlorine would be locked up by the basicity. A low pH will irreversibly damage heat exchangers (requiring replacement of the entire heater), and will damage a liner over time to the point where it too will need replacement.

- **Phosphates**

- o Phosphates are inorganic compounds containing phosphorous. They are used in fertilizers and top soil as plant nutrients. Phosphates are a large cause of water pollution in swimming pools and larger bodies of water such as ponds and lakes. Their presence boosts enormous algae growth as phosphates are a food source for algae. Using a phosphate remover to eliminate this food source greatly reduces the severity of an algae outbreak should one occur. It is important to note that algae in suspension (can be in clear, milky, or green water) consumes phosphates thus temporarily lowering the levels. After that algae is removed with a sanitizer, those phosphates are then released back into the water increasing the levels again. Phosphates in amounts greater than 200 parts per billion may require attention.

Summertime Pool Services

176 Bullock Drive, Unit #1, Markham, ON, L3P 7N1

(905) 471-7946

www.SummertimePHS.com Info@SummertimePHS.com