

<b>Chlorine</b>	1.0 - 3.0 ppm	<b>To increase:</b> adjust dial up or increase pump time <b>To decrease:</b> adjust dial down or decrease pump time
		Chlorine should be tested weekly. Check to make sure your test kit measures "free" chlorine. Free chlorine is the chlorine that is available to attack algae and bacteria. Many test kits test for "total" chlorine which includes both free chlorine and also chlorine that is already attached to the contaminants in the pool.
<b>pH</b>	7.2 - 7.8	<b>To increase:</b> add soda ash <b>To decrease:</b> add muriatic acid
		Test pH weekly. pH is very important to maintaining your pool and pH value out of the proper range (either higher or lower) can cause a variety of problems. High pH greatly reduces the effectiveness of chlorine. Pools with electronic chlorination tend to slowly drift up in pH.
<b>Total Alkalinity</b>	80 - 120 ppm (plaster pools)	<b>To increase:</b> add baking soda <b>To decrease:</b> add muriatic or dry acid
	125 - 150 ppm (vinyl/fiberglass)	Test monthly. Alkalinity is the buffer that controls pH. The upward drift of pH in pools with electronic chlorination can be controlled in many instances by keeping the total alkalinity at or near the bottom of the prescribed range.
<b>Salt</b>	2700 - 3200ppm	<b>To increase:</b> add more salt (see salt addition chart) <b>To decrease:</b> partially drain pool and refill with fresh water
		Check monthly (using the digital salt display). Higher salt levels let your chlorinator produce more chlorine and also help extend the life of the cell. The low salt indicator on the chlorinator will flash when the salt drops below 2700 ppm and the chlorinator will stop operating if the salt drops below 2500ppm. On most pools, the salt level tends to slowly drift downward as fresh water is added to the pool (rain or makeup water for splash-out, back-washing etc.). A good procedure is to add enough salt to be near the top of the range. Usually add stabilizer (see below) at the same time.
<b>Stabilizer</b>	60 - 80 ppm	<b>To increase:</b> add stabilizer <b>To decrease:</b> partially drain pool and refill with fresh water (only if over 100 ppm)
		Check quarterly. Stabilizer is also known as conditioner, cyanuric acid, or isocyanuric acid. Refer to local codes regarding its use. Stabilizer helps maintain the chlorine residual in the pool by protecting it from the UV rays from the sun. Without stabilizer, the chlorinator would have to produce much more chlorine in order to keep the desired residual level in the pool. Add enough stabilizer to be near the top end of the range at the same time you add salt.
<b>Calcium</b>	200 - 275 (plaster pools)	<b>To increase:</b> add calcium <b>To decrease:</b> partially drain pool and refill with fresh water
	175 - 225 ppm (vinyl/fiberglass)	Check quarterly. Calcium level is very important, especially for plaster pools. Excessive calcium levels can overwhelm the self cleaning feature of the chlorinator and cause the electrolytic cell to build up scale which will need to be manually removed.

## Water Chemistry

### Saturation index

$$Si = pH + Ti + Ci + Ai - 12.1$$

The saturation index (Si) relates to the calcium and alkalinity in the water and is an indicator of the pool water "balance". Your water is properly balanced if the Si is 0 +/- 0.2 . If the Si is below - 0.2, the water is corrosive and plaster pool walls will be dissolved into the water. If the Si is above + 0.2, scaling and staining will occur. Use the equation and chart below to determine the saturation index number.

**Note: Si levels greater than +0.2 may cause excessive scaling within the cell**

C	F	Ti	Calcuim Hardness	Ci	Total Alkalinity	Ai
12	53	0.3	75	1.5	75	1.9
16	60	0.4	100	1.6	100	2.0
19	66	0.5	125	1.7	125	2.1
24	76	0.6	150	1.8	150	2.2
29	84	0.7	200	1.9	200	2.3
34	94	0.8	250	2.0	250	2.4
39	103	0.9	300	2.1	300	2.5
			400	2.2	400	2.6
			600	2.4	600	2.8
			800	2.5	800	2.9

### Pounds of Stabilizer (Cyanuric Acid) for 80 ppm

Current Stabilizer Level (ppm)	Pool Size -- Gallons														
	12000	14000	16000	18000	20000	22000	24000	26000	28000	30000	32000	34000	36000	38000	40000
0	8.0	9.3	10.7	12.0	13.3	14.7	16.0	17.3	18.7	20.0	21.3	22.7	24.0	25.3	26.7
10	7.0	8.2	9.3	10.5	11.7	12.8	14.0	15.2	16.3	17.5	18.7	19.8	21.0	22.2	23.3
20	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0
30	5.0	5.8	6.7	7.5	8.3	9.2	10.0	10.8	11.7	12.5	13.3	14.2	15.0	15.8	16.7
40	4.0	4.7	5.3	6.0	6.7	7.3	8.0	8.7	9.3	10.0	10.7	11.3	12.0	12.7	13.3
50	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
60	2.0	2.3	2.7	3.0	3.3	3.7	4.0	4.3	4.7	5.0	5.3	5.7	6.0	6.3	6.7
70	1.0	1.2	1.3	1.5	1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0	3.2	3.3
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Salt and stabilizer levels tend to drop together. If the level of salt requires an increase, there is a good probability the stabilizer level will also require an increase.