CHEMISTRY QUICK START GUIDE

OVERVIEW

Before attempting to operate your new chlorine generator, salt must be added to your pool and your pool's water chemistry must be properly balanced. Properly balanced pool water is not only necessary for chlorine generation, but also to protect your pool equipment and users of the pool.

BECAUSE SOME CHEMICALS INFLUENCE MORE THAN ONE CHEMISTRY PARAMETER, IT IS IMPORTANT THAT YOU FOLLOW THE STEPS IN THE ORDER PRESENTED.

The following steps require the use of a reliable pool chemical test kit(s).

STEP 1: Calculate Pool Volume

Determine the total number of gallons of water in your pool using the formulas below. This calculation will be used frequently when adjusting pool chemical levels so take care when measuring. For non-standard shaped pools, it may be easier to break the pool up into "sections" to make the calculations. When done, add all the "sections" to determine the total volume of your pool.

	GALLONS (*pool size in feet*)	LITERS (*pool size in meters*)
Rectangular	Length x Width x Average Depth x 7.5	Length x Width x Average Depth x 1000
Round	Diameter x Diameter x Average Depth x 5.9	Diameter x Diameter x Average Depth x 785
Oval	Length x Width x Average Depth x 6.7	Length x Width x Average Depth x 893

STEP 2: Adjust Salt Level

IDEAL RANGE: Before adding salt, test your pool water for the current level of salt.

RECOMMENDED LEVEL: 2700 - 3400 ppm (3200 ppm ideal)

After testing salt, refer to Table 1 to determine how much salt must be added to achieve a level of 3200 parts per million (ppm).

Salt should be added directly to the pool with the pool pump on. Brush the salt around to speed up the dissolving process - do not allow the salt to pile up on the bottom of the pool. For new plaster pools, wait 10-14 days before adding salt to allow the plaster to cure. Run the filter pump for 24 hours with the suction coming from the main drain (use pool vac if there is no main drain) to allow the salt to evenly disperse throughout the pool.

Use common food quality salt usually available in 40-80 lb. bags labeled "Pool Salt" or "Coarse Solar Salt". Do not use rock salt, salt with yellow prussiate of soda, salt with anti-caking additives, or iodized salt.

STEP 3: Adjust Cyanuric Acid

Cyanuric Acid (Stabilizer) is very important to the performance of your chlorine generation system. It's a mild acid that helps prevent the breakdown of chlorine due to the sun's ultraviolet rays.

IDEAL LEVEL: 60 - 80 ppm outdoor pools
20 - 40 ppm covered pools
0 ppm indoor pools

Test your pool's Cyanuric Acid level using a pool test kit or bring a water sample to your local pool store.

Refer to Table 2 to determine the amount of Cyanuric Acid needed to raise the Cyanuric Acid to the desired level.

STEP 4: Adjust Total Alkalinity

Total Alkalinity (TA) is a measure of the total alkaline substances found in the pool water. The results of improper TA levels range from corrosion of metal pool parts, staining of the pool, burning eyes, cloudy water and reduced chlorine efficiency.

IDEAL LEVEL: 80 - 120 ppm

Test your pool's TA.

Refer to Table 3 to increase the pool's TA using Baking Soda (Sodium Bicarbonate 100%).

Refer to Table 4 to decrease the pool's TA using Muriatic Acid (Hydrochloric Acid 31.45%).

STEP 5: Adjust Total Hardness

Total Hardness is the measurement of the total amount of minerals that are found in your pool's water. Too much calcium hardness will cause scaling in your pool and too little will cause the pool water to become corrosive.

IDEAL LEVEL: 200 - 400 ppm

Test your pool's Total Hardness.

If low, add Calcium Chloride (77%) according to Table 5.

If Total Hardness is high, dilute or replace the pool water.

STEP 6: Adjust pH

pH is the measure of how acid/alkaline the pool water is. If pH is too low, the water can be corrosive to pool equipment. If pH is too high, then the chlorine becomes much less effective for sanitization.

IDEAL LEVEL: 7.2 - 7.8

Test your pool's pH.

To increase the pool's pH, add Soda Ash according to Table 6.

To decrease pool pH, add Muriatic Acid according to Table 7.

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Table 1

POUNDS and (Kg) OF SALT NEEDED FOR 3200 PPM

Current salt level ppm	Gallons and (Liters) of Pool/Spa water						
	12,000 (45,000)	14,000 (52,500)	16,000 (60,000)	18,000 (67,500)	20,000 (75,000)	22,000 (82,500)	24,000 (90,000)
0	320 (145)	373 (170)	427 (194)	480 (218)	533 (242)	587 (267)	640 (291)
200	300 (136)	350 (159)	400 (182)	450 (205)	500 (227)	550 (250)	600 (273)
400	280 (127)	327 (148)	373 (170)	420 (191)	467 (212)	513 (233)	560 (255)
600	260 (118)	303 (138)	347 (158)	390 (177)	433 (197)	477 (217)	520 (236)
800	240 (109)	280 (127)	320 (145)	360 (164)	400 (182)	440 (200)	480 (218)
1000	220 (100)	257 (117)	293 (133)	330 (150)	367 (167)	403 (183)	440 (200)
1200	200 (91)	233 (106)	267 (121)	300 (136)	333 (152)	367 (167)	400 (182)
1400	180 (82)	210 (95)	240 (109)	270 (123)	300 (136)	330 (150)	360 (164)
1600	160 (73)	187 (85)	213 (97)	240 (109)	267 (121)	293 (133)	320 (145)
1800	140 (64)	163 (74)	187 (85)	210 (95)	233 (106)	257 (117)	280 (127)
2000	120 (55)	140 (64)	160 (73)	180 (82)	200 (91)	220 (100)	240 (109)
2200	100 (45)	117 (53)	133 (61)	150 (68)	167 (76)	183 (83)	200 (91)
2400	80 (36)	93 (42)	107 (48)	120 (55)	133 (61)	147 (67)	160 (73)
2600	60 (27)	70 (32)	80 (36)	90 (41)	100 (45)	110 (50)	120 (55)
2800	40 (18)	47 (21)	53 (24)	60 (27)	67 (30)	73 (33)	80 (36)
3000	20 (9)	23 (11)	27 (12)	30 (14)	33 (15)	37 (17)	40 (18)
3200	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	Ideal
above 3400	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute	Dilute

Table 2

POUNDS and (Kg) OF STABILIZER (CYANURIC ACID) NEEDED FOR 80 PPM

Current Stabilizer level (ppm)	Gallons and (Liters) of Pool Water								
	8,000 (30,000)	10,000 (37,500)	12,000 (45,000)	14,000 (52,500)	16,000 (60,000)	18,000 (67,500)	20,000 (75,000)	22,000 (82,500)	24,000 (90,000)
0 ppm	5.3 (3.6)	6.7 (4.3)	8.0 (3.6)	9.4 (4.3)	10.7 (4.9)	12.0 (5.4)	13.4 (6.1)	14.7 (6.7)	16.0 (7.3)
10 ppm	4.7 (3.2)	5.8 (3.7)	7.0 (3.2)	8.2 (3.7)	9.4 (4.3)	10.5 (4.8)	11.7 (5.3)	12.9 (5.9)	14.0 (6.4)
20 ppm	4.0 (2.7)	5.0 (3.2)	6.0 (2.7)	7.0 (3.2)	8.0 (3.6)	9.0 (2.2)	10.0 (4.5)	11.0 (5.0)	12.0 (5.4)
30 ppm	3.3 (2.3)	4.2 (2.7)	5.0 (2.3)	5.9 (2.7)	6.7 (3.0)	7.5 (3.4)	8.4 (3.8)	9.2 (4.2)	10.0 (4.5)
40 ppm	2.7 (1.8)	3.3 (2.1)	4.0 (1.8)	4.7 (2.1)	5.4 (2.4)	6.0 (2.7)	6.7 (3.0)	7.4 (3.3)	8.0 (3.6)
50 ppm	2.0 (1.4)	2.5 (1.6)	3.0 (1.4)	3.5 (1.6)	4.0 (1.8)	4.5 (2.0)	5.0 (2.3)	5.5 (2.5)	6.0 (2.7)
60 ppm	1.3 (.91)	1.7 (1.1)	2.0 (.91)	2.3 (1.1)	2.7 (1.2)	3.0 (1.4)	3.3 (1.5)	3.7 (1.7)	4.0 (1.8)
70 ppm	0.7 (.45)	0.8 (.54)	1.0 (.45)	1.2 (.54)	1.4 (.64)	1.5 (.68)	1.7 (.77)	1.8 (.82)	2.0 (.91)
80 ppm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 3

POUNDS and (Kg) OF BAKING SODA (SODIUM BICARBONATE 100%) NEEDED TO INCREASE TOTAL ALKALINITY TO THE RECOMMENDED RANGE

Desired Increase (ppm)	Gallons and (Liters) of Pool Water						
	400 (1,500)	1,000 (3,750)	5,000 (19,000)	10,000 (38,000)	15,000 (57,000)	20,000 (75,000)	25,000 (95,000)
10 ppm	0.1 (0)	0.1 (0.1)	0.7 (0.3)	1.4 (0.6)	2.1 (1)	2.8 (1.3)	3.5 (1.6)
20 ppm	0.1 (0.1)	0.3 (0.1)	1.4 (0.6)	2.8 (1.3)	4.2 (1.9)	5.6 (2.5)	7 (3.2)
30 ppm	0.2 (0.1)	0.4 (0.2)	2.1 (1)	4.2 (1.9)	6.3 (2.9)	8.4 (3.8)	10.5 (4.8)
40 ppm	0.2 (0.1)	0.6 (0.3)	2.8 (1.3)	5.6 (2.5)	8.4 (3.8)	11.2 (5.1)	14 (6.4)
50 ppm	0.3 (0.1)	0.7 (0.3)	3.5 (1.6)	7.0 (3.2)	10.5 (4.8)	14.0 (6.4)	17.5 (7.9)
60 ppm	0.3 (0.2)	0.8 (0.4)	4.2 (1.9)	8.4 (3.8)	12.6 (5.7)	16.8 (7.6)	21 (9.5)
70 ppm	0.4 (0.2)	1 (0.4)	4.9 (2.2)	9.8 (4.4)	14.7 (6.7)	19.6 (8.9)	24.5 (11.1)
80 ppm	0.4 (0.2)	1.1 (0.5)	5.6 (2.5)	11.2 (5.1)	16.8 (7.6)	22.4 (10.2)	28 (12.7)
90 ppm	0.5 (0.2)	1.3 (0.6)	6.3 (2.9)	12.6 (5.7)	18.9 (8.6)	25.2 (11.4)	31.5 (14.3)
100 ppm	0.6 (0.3)	1.4 (0.6)	7.0 (3.2)	14 (6.4)	21 (9.5)	28 (12.7)	35 (15.9)

Table 4

OUNCES and (L) OF MURIATIC ACID NEEDED TO DECREASE TOTAL ALKALINITY TO THE RECOMMENDED RANGE

Desired Decrease (ppm)	Gallons and (Liters) of Pool Water						
	400 (1,500)	1,000 (3,750)	5,000 (19,000)	10,000 (38,000)	15,000 (57,000)	20,000 (75,000)	25,000 (95,000)
10 ppm	1 (0)	2.5 (0.08)	13 (0.41)	26 (0.81)	39 (1.2)	52 (1.6)	65 (2)
20 ppm	2 (0.06)	5 (0.16)	26 (0.81)	52 (1.6)	78 (2.4)	105 (3.3)	131 (4)
30 ppm	3.2 (0.1)	8 (0.24)	39 (1.2)	78 (2.4)	105 (3.3)	157 (4.9)	196 (6)
40 ppm	4.2 (0.13)	10.5 (0.33)	52 (1.6)	105 (3.3)	157 (4.9)	208 (6.5)	260 (8.1)
50 ppm	5.2 (0.16)	13 (0.41)	65 (2)	131 (4)	196 (6)	260 (8.1)	325 (10.1)
60 ppm	6.2 (0.2)	15.5 (0.49)	78 (2.4)	157 (4.9)	235 (7.3)	314 (9.8)	390 (12.2)
70 ppm	7.2 (0.23)	18 (0.57)	91 (2.8)	183 (5.7)	275 (8.5)	366 (11.4)	457 (14.2)
80 ppm	8.4 (0.26)	21 (0.65)	105 (3.3)	208 (6.5)	312 (9.8)	416 (13)	520 (16.2)
90 ppm	9.4 (0.3)	23.5 (0.73)	118 (3.6)	235 (7.3)	353 (11)	470 (14.6)	588 (17.9)
100 ppm	10.4 (0.32)	26 (0.81)	131 (4.7)	260 (8.1)	390 (12.2)	520 (16.2)	651 (20.9)

Table 5

POUNDS and (Kg) OF CALCIUM CHLORIDE (77%) NEEDED TO INCREASE CALCIUM HARDNESS TO THE RECOMMENDED RANGE

Desired Increase (ppm)	Gallons and (Liters) of Pool Water						
	400 (1,500)	1,000 (3,750)	5,000 (19,000)	10,000 (38,000)	15,000 (57,000)	20,000 (75,000)	25,000 (95,000)
10 ppm	0 (0)	0.1 (0.1)	0.6 (0.3)	1.2 (.5)	1.8 (.8)	2.4 (1.1)	3 (1.4)
20 ppm	0.1 (0)	0.2 (0.1)	1.2 (0.5)	2.4 (1.1)	3.6 (1.6)	4.8 (2.2)	6 (2.7)
30 ppm	0.1 (0.1)	0.4 (0.2)	1.8 (0.8)	3.6 (1.6)	5.4 (2.5)	7.2 (3.3)	9 (4.1)
40 ppm	0.2 (0.1)	0.5 (0.2)	2.4 (1.1)	4.8 (2.2)	7.2 (3.3)	9.6 (4.4)	12 (5.5)
50 ppm	0.2 (0.1)	0.6 (0.3)	3.0 (1.4)	6.0 (2.7)	9 (4.1)	12.0 (5.5)	15 (6.8)
60 ppm	0.3 (0.1)	0.7 (0.3)	3.6 (1.6)	7.2 (3.3)	10.8 (4.9)	14.4 (6.5)	18 (8.2)
70 ppm	0.3 (0.2)	0.8 (0.4)	4.2 (1.9)	8.4 (3.8)	12.6 (5.7)	16.8 (7.6)	21 (9.5)
80 ppm	0.4 (0.2)	1 (0.4)	4.8 (2.2)	9.6 (4.4)	14.4 (6.5)	19.2 (8.7)	24 (10.9)
90 ppm	0.4 (0.2)	1.1 (0.5)	5.4 (2.4)	10.8 (4.9)	16.2 (7.3)	21.6 (9.8)	27 (12.2)
100 ppm	0.4 (0.2)	1.2 (0.5)	6.0 (2.7)	12 (5.4)	18 (9.5)	24 (10.9)	30 (13.6)

Table 6

OUNCES AND (GRAMS) OF SODA ASH (SODIUM CARBONATE) NEEDED TO RAISE pH TO THE RECOMMENDED RANGE

CURRENT pH	Gallons and (Liters) of Pool Water						
	400 (1,500)	1,000 (3,750)	5,000 (19,000)	10,000 (38,000)	15,000 (57,000)	20,000 (75,000)	25,000 (95,000)
7.0 - 7.2	0.25 (8.5)	0.75 (21.3)	4 (113)	8 (227)	12 (340)	16 (454)	20 (568)
6.7 - 7.0	0.5 (14)	1.25 (35.4)	6 (170)	12 (340)	16 (454)	24 (681)	32 (908)
under 6.7	0.6 (17)	1.5 (42.5)	8 (227)	16 (454)	24 (681)	32 (908)	40 (1100)

Table 7

OUNCES AND (GRAMS) OF MURIATIC ACID NEEDED TO LOWER pH TO THE RECOMMENDED RANGE

CURRENT pH	Gallons and (Liters) of Pool Water						
	400 (1,500)	1,000 (3,750)	5,000 (19,000)	10,000 (38,000)	15,000 (57,000)	20,000 (75,000)	25,000 (95,000)
7.8 - 8.0	0.6 (17)	1.5 (43)	8 (225)	16 (454)	24 (680)	32 (900)	40 (1125)
8.0 - 8.4	1.0 (28)	2.5 (70)	12 (340)	24 (680)	36 (1020)	48 (1360)	60 (1700)
over 8.4	1.2 (35)	3 (86)	16 (454)	32 (900)	48 (1350)	64 (1800)	80 (2250)