

# FILTRATION

- The returning filtered water mixes with pool water and dilutes it making it less turbid.
- At the point of equilibrium 98% clarification is achieved with a 6 hour turnover if the filter medium is effective and the filter is sized properly.

Turnovers per 24 hrs	Turnover period	Percent clarification after equilibrium	Number of days required to attain equilibrium
1	24	42	9
2	12	84	4
3	8	95	3
4	6	98	2
5	4.8	99	1

**Important to ensure that cycle time is completed**

# POOL SANITATION - WATER CHEMISTRY

TEST	MINIMUM	IDEAL	MAXIMUM
pH	7.2	7.5	7.8
Free Chlorine (ppm)	1	2	3
Cyanuric Acid (ppm)	0	-	100
ORP (mV)	650	-	-
Total Alkalinity	80		120
Calcium Hardness	200		400

- Hayward strongly recommends establishing desired pH, sanitizer residual, calcium hardness, total alkalinity, temperature and cyanuric acid levels prior to initiating automated control of the pool or spa.
- All local codes and regulatory requirements should be satisfied.

# POOL SANITATION - CHEMICAL DOSAGE

Chlorine gas required for:

PPM Rise	Pool Volume	Oz required	Gms required
1 ppm	10,000 gallons ( 37 cu.m)	1.3 oz	37 gms
3 ppm	10,000 gallons		111 gms
10 ppm	10,000 gallons		370 gms

TriChlore (90% Cl) required for:

PPM Rise	Pool Volume	Oz required	Gms required
1 ppm	10,000 gallons ( 37 cu.m)	1.5 oz	42.5 gms
3 ppm	10,000 gallons		128 gms
10 ppm	10,000 gallons		425 gms

## Increase pH

Sodium Carbonate (Soda Ash)  
Sodium Hydroxide (50%) (Caustic Soda)

**0.2 \***  
6 ounces  
(also raises Total Alkalinity 5 ppm)  
5.5 fluid ounces

## Decrease pH

Muriatic Acid (35% Hydrochloric Acid)  
Sodium Bisulfate (Dry Acid)  
Carbon Dioxide (CO<sub>2</sub>)

**0.2 \***  
12 fluid ounces  
(also lowers Total Alkalinity 5 ppm)  
1.0 pound  
(also lowers Total Alkalinity 5 ppm)  
4.0 ounces

**In 10000 gallons**

## Increase Total Alkalinity

Sodium Bicarbonate (Baking Soda)  
Sodium Carbonate

**10 ppm**  
1.4 pounds  
14 ounces

## Increase Stabilizer

Cyanuric Acid (Conditioner)

**10 ppm**  
13 ounces

**In 10000 gallons**

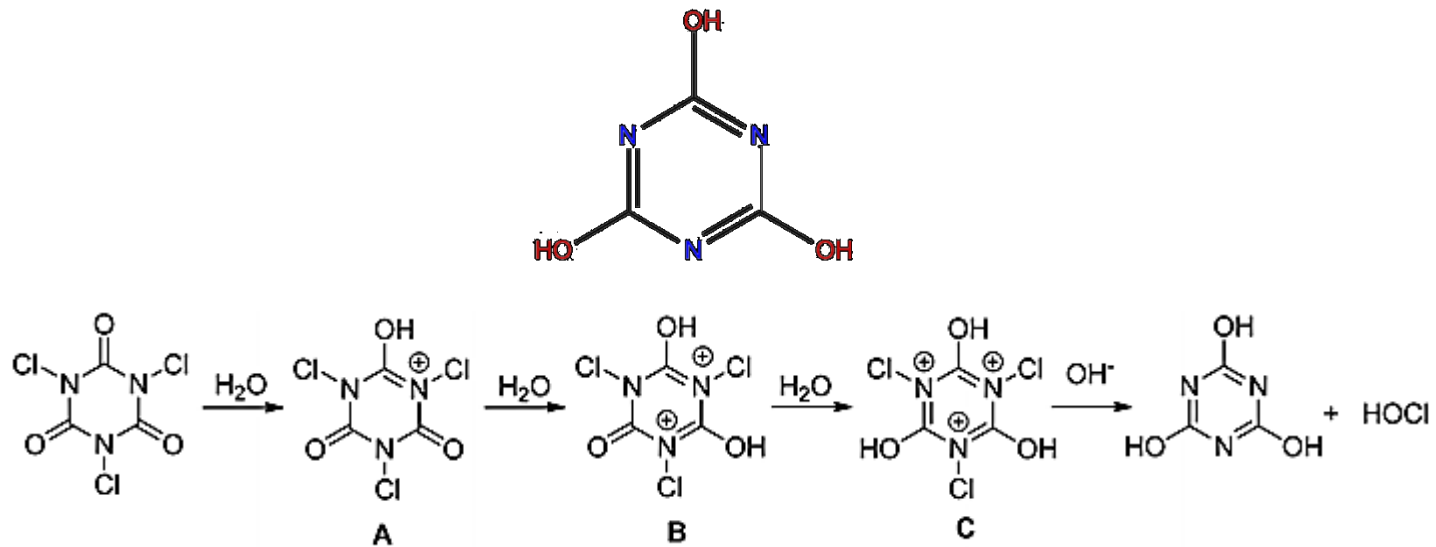
Sodium Hypo (12% Cl) required for:

PPM Rise	Pool Volume	Gallons required	Lts required
1 ppm	10,000 gallons ( 37 cu.m)	0.084 Gal	0.320 ltr
3 ppm	10,000 gallons	0.252 Gal	1.06 ltr
10 ppm	10,000 gallons		3.20 ltr
1 ppm	10 cu.m/h	0.0227 gal/h 0.55 gal/day	0.0864 ltr/h 2 ltr/day

## Chlorine Generated from Hayward Salt Chlorination Systems ( if on 24hrs )

Chlorinator	g/h	g/day	Lbs/day
AQR3	9.45	227	0.5
AQR9	18.51	444	1.00
AQR15	27.78	666	1.48
SAS15EU	15	360	0.8
SAS22EU	22	528	1.17
SALINE6.0	93.75	2,250	5.00

# STABILIZER – CYANURIC ACID



POUNDS and (Kg) OF STABILIZER (CYANURIC ACID) NEEDED FOR 40 PPM

Current Stabilizer level (ppm)	Gallons and (Liters) of Pool Water																
	8,000 (30000)	10,000 (37500)	12,000 (45000)	14,000 (52500)	16,000 (60000)	18,000 (67500)	20,000 (75000)	22,000 (82500)	24,000 (90000)	26,000 (97500)	28,000 (105000)	30,000 (112500)	32,000 (82500)	34,000 (90000)	36,000 (97500)	38,000 (105000)	40,000 (112500)
0 ppm	2.7 (1.2)	3.4 (1.5)	4.0 (1.8)	4.7 (2.2)	5.4 (2.5)	6.0 (2.7)	6.7 (3.0)	7.4 (3.4)	8.0 (3.6)	8.7 (4.0)	9.4 (4.3)	10.0 (4.5)	10.8 (5.0)	11.4 (5.2)	12 (5.4)	12.7 (5.7)	13.4 (6)
10 ppm	2.0 (.9)	2.5 (1.1)	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)	6.5 (3.0)	7.0 (3.2)	7.5 (3.4)	8 (3.6)	8.5 (3.8)	9 (4.0)	9.5 (4.3)	10 (4.6)
20 ppm	1.3 (.59)	1.7 (.77)	2.0 (.90)	2.3 (1.1)	2.7 (1.3)	3.0 (1.3)	3.3 (1.5)	3.7 (1.6)	4.0 (1.8)	4.3 (2.0)	4.6 (2.1)	4.9 (2.2)	5.4 (2.4)	5.7 (2.5)	6 (2.6)	6.3 (2.8)	6.6 (3.0)
30 ppm	0.7 (.31)	0.8 (.36)	1.0 (.45)	1.2 (.54)	1.4 (.64)	1.5 (.68)	1.7 (.77)	1.8 (.82)	2.0 (.91)	2.2 (.97)	2.4 (1.1)	2.6 (1.2)	2.8 (1.3)	2.9 (1.3)	3.0 (1.4)	3.2 (1.4)	3.4 (1.5)
40 ppm	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	0.0	0.0