

Pool Disinfectant Ranges							Water Characteristics Ranges		
	Free Chlorine Residual				Bromine Residual			Minimum	Maximum
	Without CYA		With CYA				pH	7.2	7.8
	Min	Max	Min	Max	Min	Max			
Public Pools*	1.0 ppm	10.0 ppm	2.0 ppm	10.0 ppm	2.0 ppm	-	Combined Chlorine Concentration	0.0 ppm	0.4 ppm
Public Spas, Wading Pools, and Spray Grounds	3.0 ppm	10.0 ppm	3.0 ppm	10.0 ppm	4.0 ppm	-	Pool Water Temperature	Not applicable	104°F

CYA = cyanuric acid; Min = minimum; Max = maximum; ppm = parts per million.
 *This includes all public pools except spas, wading pools, and spray grounds.

The chlorine or bromine test kit shall be the DPD type. Chlorine test kits shall be capable of testing for free chlorine and total chlorine, such that combined chlorine concentrations can be determined.

The pool operator shall maintain a test kit for measuring the disinfectant residual, pH, and, if used, cyanuric acid concentration at the public pool. This test kit shall be available for use by the pool operator and the enforcing agent at all times the public pool is in use.

Useful Pool Formulas

Combined Chlorine = Total Chlorine – Free Chlorine	Pressure differential = pressure difference between effluent and influent gauges, if more than 10 psi back wash/clean filter																					
Volume in gallons = surface area x average depth x 7.5	<table border="1"> <thead> <tr> <th colspan="3">Turnover time</th> </tr> <tr> <th>Type</th> <th>Current</th> <th>Prior to 10/82</th> </tr> </thead> <tbody> <tr> <td>Spa</td> <td>30 minutes or less</td> <td>1 hour or less</td> </tr> <tr> <td>Spray ground</td> <td>30 minutes or less</td> <td>N/A</td> </tr> <tr> <td>Wading pool</td> <td>1 hour or less</td> <td>2 hours or less</td> </tr> <tr> <td>Medical pool</td> <td>2 hours or less</td> <td>N/A</td> </tr> <tr> <td>Pool</td> <td>6 hours or less</td> <td>8 hours or less</td> </tr> </tbody> </table>	Turnover time			Type	Current	Prior to 10/82	Spa	30 minutes or less	1 hour or less	Spray ground	30 minutes or less	N/A	Wading pool	1 hour or less	2 hours or less	Medical pool	2 hours or less	N/A	Pool	6 hours or less	8 hours or less
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Turnover Rate (hr) = Pool Volume ÷ Flow Rate ÷ 60 min/hour																						
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<p>Remarks Required</p> <p>The pool operator shall maintain a written daily record of all test results, equipment readings, calibrations, and corrective action taken at the public pool site. Maintain records for at least 2 years for inspection by the enforcing agent and shall submit all data and records to the enforcing agent upon the agent's request.</p>																						

Water Chemistry Adjustment Worksheet (from 2014 NSPF Pool & Spa Operator Handbook appendix B-2)

Amount of Chemical	Actual Pool Volume in Gallons	Desired Chemical Change	Total
	Calculated from Volume formula from above.	= Desired concentration – Existing concentration	
	÷ 10,000 Gallons	From chart below ÷ <u>1</u> ppm	
↓	↓	↓	↓
From chart below or product label	X	X	=

Chemical	Amount	Effect on 10,000 Gallons
Increase Chlorine		
Chlorine Gas	1.3 oz	1 ppm
Calcium Hypochlorite (67%)	2.0 oz	1 ppm
Sodium Hypochlorite (12%)	10.7 fl.oz.	1 ppm
Lithium Hypochlorite	3.8 oz	1 ppm
Dichlor (62%)	2.1 oz	1 ppm
Dichlor (56%)	2.4 oz	1 ppm
Trichlor	1.5 oz	1 ppm
Decrease Chlorine		
Sodium Thiosulfate	2.6 oz	1 ppm
Sodium Sulfite	2.4 oz	1 ppm
<i>These commonly accepted chemical parameters do not supersede manufacture's instructions. Always consult product labels for specific directions as to chemical adjustments.</i>		