Clayton County Environmental Health
Public Swimming Pool Program

Clayton County Board of Health Swimming Pool Regulations

Section -.17 Chemical Operational Parameters.

The chemical operational parameters in swimming pool or spa water shall not exceed the maximum level or be lower than the minimum level given in the following parameters. Where no minimum or maximum is given, additional information is within this Chapter to assist the pool operator.

	Minimum	Ideal	Maximum	Comments
(1) Disinfectant Levels				
Free chlorine, ppm.	**ppm**	**ppm**	**ppm**	In a pool, hot weather/heavy use may require operation at or near maximum levels.
All public pools except as listed below:	1.5	1.5-3-0	5.0	Regular superchlorination is recommended (see Remedial Practices below).
1. Spas	3.0	3.0-5.0	10.0	
2.Activity/interactive /Wading Pools	3.0	3.0-5.0	10.0	
3. Continuous Water Course/Rivers	2.0	2.0-5.0	5.0	In a spa, during hours of operation, test the water hourly and record results. Maintain this range continually and shock treat at the end of the daily use period.
4. Duel Use Pools	2.0	2.0-5.0	5.0	
5. Falling Entry Pools	2.0	2.0-5.0	5.0	
6. Wading Pools	3.0	3.0-5.0	10.0	
7. Wave Pools	2.0	2.0-5.0	5.0	
8. Water Attraction Pump Reservoirs	3.0	3.0-5.0	10.0	
9. Zero-Depth Pools	3.0	3.0-5.0	10.0	
Free Chlorine in stabilized pools	3.0	3.0-5.0	10.0	
Combined chlorine, ppm	None	None	0.2	High combined chlorine results in reduced chemical efficacy. Take remedial action to establish break point chlorination (See Remedial Practices below). Other signs of combined chlorine: -Sharp chlorine odor -Eye irritation -Algae growth
Bromine, ppm	2.0	Pool 3.0-5.0 Spa 4.0-6.0	Pool 8.0 Spa 10.0	In a spa, during hours of operation, test the water hourly and record results. Maintain this range continually and shock treat at the end of the daily use.

Iodine, ppm	Levels not established	---------	----------	Note: Local health department officials should be consulted before use.
(2) Chemical Values	Minimum	Ideal	Maximum	Comments
pH	7.2	7.4-7.6	7.8	If pH is: Too High or too Low: -Low chlorine -Rapid efficiency dissipation - Scale formation disinfectant - Cloudy water - Eye discomfort - Plaster and concrete etching - Corrosion of metals & vinyl liner damage
	300	1000-2000	3000	These values are offered as guidelines rather than absolute values to indicate concern for accumulation of impurities in the course of operation. Excessive high TDS may lead to hazy water, corrosion of fixtures, etc., and can be reduced by partial draining with addition of fresh water. High initial TDS may indicate poor water quality due to corrosive mineral salts, humus or organic matter. Consult local water authority. Increasing TDS indicates build up of impurities to be controlled by partial drain/refill with fresh water.
Calcium hardness, ppm, as $CaCo_3$	150	200-400 to balance water	500-1000+	Operations of pools, spas and hot tubs at maximum hardness will depend on alkalinity (buffering) requirements of the sanitizer used. Maximum alkalinity and lower pH must be used with maximum hardness (over 500 ppm)
Algae	None	None	None	If algae are observed: -Shock treat pool (See Remedial Practices, Shock treatment) -Supplement with brushing and vacuuming. -Use approved algaecide according to label

				directions (See Remedial Practices below)
Bacteria	None	None		If bacteria count exceeds maximum allowed: -Superchhlorinate and follow proper maintenance procedures -Maintain proper disinfectant residual.
(3) Stabilizer (if used)	Minimum	Ideal	Maximum	Comments
Cyanuric acid, ppm	10	30-50	100	If stabilizer is: Too High or too Low: - May exceed local - Chlorine health department Residual regulation rapidly -May reduce destroyed chlorine efficacy by sunlight Note: Stabilizer is not needed in indoor or brominated pools and spas.
Superchlorination frequency	Pool- Monthly	Pool- Every other week Spa - Daily	Pool- Weekly when the temperatur e is over 85 F	Note: Some high use pools may need superchlorination three times a week or more as a preventative measure or when combined chlorine is over 0.2 ppm.
(4) Remedial Practices	Minimum	Ideal	Maximum	Comments
Superchlorination to establish break point dosage in ppm.				When combined chlorine is over 0.2 ppm, superchlorinate by adding ten times the combined chlorine ppm (e.g. If combined chlorine is 0.3 ppm, superchlorinate by adding 3 ppm chlorine) Applied at the end of daily usage, hold this level for 1-4 hours to clarify the water, remove ammonia (combined chlorine), and to kill any algae present. Can also be applied when no bathers are present and as required to maintain clear water and the required halogen residual.
Shock treatment,	10	--------	---------	Nonchlorine oxidizers are not considered biocidal,

dosage in ppm				but may reduce organic contaminants.
Clarifying/Floccing frequency	------	When needed	---------	Use all clarifiers following manufacturer's directions.
Water replacement				Water in spas that have high bather use may require partial or complete replacement of water periodically to dilute dissolved solids, to maintain water clarity and to do necessary routine maintenance.
Foam	None	None	None	Foam may harbor persistent microorganisms. If foaming is not adequately controlled, consider daily shock treatment, water replacement or an appropriate antifoam agent. Follow manufacturer's directions.
(5) Temperature ^{0}F		78^0-82^0F or Bather prefere nce	104^0F	If temperature is: Too High: -Health hazard -Bather discomfort -Excessive fuel requirement -Increased evaporation -Increased scaling potential -Increased use of disinfectants -Increase potential for corrosion Too Low: -Bather discomfort -Increase chance of hyperthermia
(6) Water Clarity Water turbidity	Must be able to see main drain covers or a standard black and white disc lying on the bottom of the deepest portion of the pool.	--	--	**If water is turbid:** - Disinfectant level may be low - Filtration system may be inoperative - Improper chemical balance - Bottom should be clearly visible at the deepest part of the pool or spa. - Consult remedial practices
(7) Oxidizers	Minimum	Ideal	Maximum	Comments
Ozone, low output generators	--	--	0.1	Serves as oxidizer of water contaminants.

Contact concentration mg/L when ozone is injected and not removed prior to entry into pool. Above pool and spa levels	0	0	0.05	Indoor installations should have adequate ventilation.
(8) Oxidizer Reduction Potential	Minimum	Ideal	Maximum	Comments
ORP	650 MV	--	--	When chlorine or bromine is used as the primary disinfectant, ORP can be used as a supplemental measurement of proper sanitizer activity. The use of ORP testing does not eliminate or supersede the need for testing the sanitizer level with standard test kits and ORP reading may be affected by a number of factors including (1) pH, (2) probe film and (3) cyanuric acid. Follow manufacturer's recommendations.