B-1 Water Chemistry Guidelines

These commonly accepted chemical parameters do not supercede local or state codes and regulations.

Parameter	Min.	Ideal	Max.	Pool Type
Free Chlorine (ppm or mg/L)	1.0	2.0 – 4.0	5.0	Pools, Waterparks
	2.0	3.0 – 5.0	10.0	Spas
Combined Chlorine (ppm or mg/L)	0	0	0.2	Pools, Waterparks
	0	0	0.5	Spas
Total Bromine (ppm or mg/L)	2.0	4.0 – 6.0	10.0	All Types
PHMB (ppm or mg/L)	30	30 – 50	50	All Types
pH	7.2	7.4 – 7.6	7.8	All Types
Total Alkalinity as $CaCO_3$ (ppm or mg/L)	60	80 – 100* 100 – 120**	180	All Types
Total Dissolved Solids (ppm or mg/L)	NA	NA	1,500 over start-up***	All Types
Calcium Hardness as $CaCO_3$ (ppm or mg/L)	150	200 – 400	1,000	Pools, Waterparks
	100	150 – 250	800	Spas
Heavy Metals	None	None	None	All Types
Visible Algae	None	None	None	All Types
Bacteria	None	None	Local Code	All Types
Cyanuric Acid (ppm or mg/L)	0	30 – 50	****	All Types
Temperature °F	78 °F	80.5 °F	82 °F	Competition Pools
	–	–	104 °F	Spas
	–	Personal Preference	104 °F	Other Pools
Ozone (ppm or mg/L)	–	–	0.1 Over 8-hr. time wtd. avg.	All Types
ORP	Calibrate to Disinfectant Level*****			All Types

* For calcium hypochlorite, lithium hypochlorite, or sodium hypochlorite

** For sodium dichlor, trichlor, chlorine, gas, BCDMH

*** Start-up includes the TDS contribution of salt found in chlorine generating systems

**** Dictated by state or local codes. Typically 100 ppm (mg/L). (Some codes are higher, some are lower)

***** Some state or local codes may dictate a minimum and maximum

Saturation Index Factors

TEMPERATURE		HARDNESS		ALKALINITY	
°F	Tf	PPM	Cf	PPM	Af
32	0.00	25	1.0	25	1.4
37	0.10	50	1.3	50	1.7
46	0.20	75	1.5	75	1.9
53	0.30	100	1.6	100	2.0
60	0.40	125	1.7	125	2.1
66	0.50	150	1.8	150	2.2
76	0.60	200	1.9	200	2.3
84	0.70	250	2.0	250	2.4
94	0.80	300	2.1	300	2.5
105	0.90	400	2.2	400	2.6
		800	2.5	800	2.9

TDS (ppm)	TDS factor
1-1000	12.1
1000-2000	12.2
2000-3000	12.3
3000-4000	12.4
4000-5000	12.5
5000-6000	12.55
6000-7000	12.6
7000-8000	12.65
Each additional 1000 add →	0.05

$$SI = Ph + Tf + Cf + Af - TDSf$$