

# Pool and Spa Water Chemistry Adjustment Guide

**The following guide can be used to assist in the adjustment of the water chemistry in your swimming pool or spa.**

Follow the steps below:

1. Determine the chemical adjustment that is desired. Use Pool/Spa Chemistry Guideline page (Page 2) to determine the minimum, ideal, and maximum requirements for your pool or spa.
  - Tip: if multiple chemical adjustments are required, adjust in the following order:
    - 1) Total Alkalinity
    - 2) Chlorine
    - 3) pH
    - 4) Other Adjustments.
2. Next, determine which chemical will be used to make the desired adjustment. Refer to the Water Chemistry Adjustment Guide (Page 3) to determine which chemicals you will need to use to make the adjustment.
3. Refer to the Water Chemistry Adjustment Worksheet Guidance (Page 4) for an example of chemical adjustment.
4. Page 5 has blank water chemistry adjustment worksheets available for your use.

**If you have questions regarding water chemistry guidelines and water chemistry adjustment, call the Licking County Health Department at (740) 349-6535.**



# Pool/Spa Water Chemistry Guide

## Public Swimming Pool:

Parameter	Minimum	Ideal	Maximum
Free Chlorine (ppm)	1	2-4	N/A (recommended not higher than 5)
Combined Chlorine (ppm)	0	0	1
Total Bromine (ppm)	2	4-6	N/A (recommended not higher than 10)
pH	7.2	7.4-7.6	7.8
Total Alkalinity (ppm)	60	80-120	Should not impair ability to meet other required chemical/clarity parameters
Total Dissolved Solids (ppm)	Shall not maintain any level that impairs ability to meet required chemical/clarity parameters		
Cyanuric Acid (ppm)	0	30-50	70
Temperature	N/A	Personal Preference	90°F
ORP	650	Calibrate to disinfectant level	
Clarity	Deepest point of pool visible from deck		

## Public Spa:

Parameter	Minimum	Ideal	Maximum
Free Chlorine (ppm)	2	3-4	N/A (recommended not higher than 10)
Combined Chlorine (ppm)	0	0	1
Total Bromine (ppm)	4	4-6	N/A (recommended not higher than 10)
pH	7.2	7.4-7.6	7.8
Total Alkalinity (ppm)	60	80-120	Should not impair ability to meet other required chemical/clarity parameters
Total Dissolved Solids (ppm)	Shall not maintain any level that impairs ability to meet required chemical/clarity parameters		
Cyanuric Acid (ppm)	0	30-50	70
Temperature	N/A	Personal Preference	104°F
ORP	650	Calibrate to disinfectant level	
Clarity	Deepest point of spa visible from deck		

# Pool/Spa Water Chemistry Guide

## Water Chemistry Adjustment Guide:

Chemical	Change Per 10,000 Gallons Water
Increase Chlorine	1 ppm
Calcium Hypochlorite (67%)	2 oz.
Sodium Hypochlorite (12%)	10.7 oz.
Lithium Hypochlorite	3.8 oz.
Dichlor (62%)	2.1 oz.
Dichlor (56%)	2.4 oz.
Trichlor	1.5 oz.
Neutralize Chlorine	1 ppm
Sodium Thiosulfate	2.6 oz.
Sodium Sulfite	2.4 oz.
Increase Total Alkalinity	10 ppm
Sodium Bicarbonate	1.4 lbs.
Sodium Carbonate	14 oz.
Sodium Sesquicarbonate	1.25 lbs.
Decrease Total Alkalinity	10 ppm
Muratic Acid (31.4%)	26 fl. oz.
Sodium Bisulfate	2.1 lbs.
Increase Stabilizer	10 ppm
Cyanuric Acid	13 oz.
Increase pH	0.2
Sodium Carbonate (Soda Ash)	6 oz.
Sodium Hydroxide 50 % (Caustic Soda)	5.5 fl. oz.
Decrease pH	0.2
Muriatic Acid	12 oz

Note: Always follow instructions on the manufactures label for exact dosage amounts and handling.

# Pool/Spa Water Chemistry Guide

## Water Chemistry Adjustment Worksheet Guidance:

The following guide can be used to assist in the adjustment of the water chemistry in your swimming pool or spa.

The Water Chemistry Adjustment Guide (Page 3) is needed. Follow each step to determine the proper amount of chemical needed to make the desired adjustment.

1. Write the chemical adjustment being made.
2. Write the chemical being used to make the proper adjustment from Adjustment Guide (Page 3)
3. Write the actual volume of your pool or spa. This can be found on your pool license.
4. Write the desired change in water chemistry.
  - For example, free chlorine is 1 ppm. I want to increase free chlorine to the ideal range from the Chemistry Guidelines (Page A1). Current reading 1 ppm, increase to 3 ppm, desired change is 3 ppm – 1 ppm = 2 ppm.
5. From the Adjustment Guide (Page A3) write the change per 10,000 gallons of water.
6. From the Adjustment Guide (Page A3) write the amount of chemical with units that is required per 10,000 gallons of water.
7. Divide the pool volume and desired change columns.
8. Multiple the bottom row.
9. Transfer the units from the chemical amount to the total box.
10. Add the calculated amount of the chemical in the total box to your pool or spa to make the desired adjustment.

### Step 1) Increase Free Chlorine

Chemical Adjustment Being Made: \_\_\_\_\_

Chemical to be Used	Pool Volume	Desired Change	Total
<b>Step 2)</b> Calcium Hypochlorite (67%)	<b>Step 3)</b> 20,000 Gallons	<b>Step 4)</b> 2 ppm	
Amount of Chemical from Water Adjustment Guide	÷ 10,000 Gallons J,	<b>Step 5)</b> ÷ 1 ppm (from Water Adjustment Guide) J,	
<b>Step 6)</b> 2 oz.	x <b>Step 7)</b> 2	x <b>Step 7)</b> 2	= <b>Step 8) &amp; Step 9)</b> 8 oz.
			▶

# Pool/Spa Water Chemistry Guide

## Water Chemistry Adjustment Worksheet:

Chemical Adjustment Being Made: \_\_\_\_\_

Chemical to be Used	Pool Volume	Desired Change	Total
	<b>Gallons</b>		
<b>Amount of Chemical from Water Adjustment Guide</b>	<b>÷ 10,000 Gallons</b>	<b>÷ (from Water Adjustment Guide)</b>	
<b>J,</b>	<b>x J,</b>	<b>x J,</b>	<b>=</b>

Chemical Adjustment Being Made: \_\_\_\_\_

Chemical to be Used	Pool Volume	Desired Change	Total
	<b>Gallons</b>		
<b>Amount of Chemical from Water Adjustment Guide</b>	<b>÷ 10,000 Gallons</b>	<b>÷ (from Water Adjustment Guide)</b>	
<b>J,</b>	<b>x J,</b>	<b>x J,</b>	<b>=</b>