

# Chlorine Solution Tables

The following tables can be used in calculating the required amount of chlorine to be added to various typical water volumes in order to achieve a desired chlorine solution concentration (see *Chlorine Disinfection in Healthcare Facilities* document for information on the minimum chlorine concentrations for different disinfection applications). Each table is for a different source of chlorine. Use these steps to determine the required amount of chlorine:

- Step 1:** Identify available chlorine source and its chlorine concentration percentage (e.g., on a product label) to inform which table to use below.
- Step 2:** Determine the *Desired Concentration of Chlorine Solution* based on the purpose for this mixture (e.g., 0.5 – 1.0 mg/L for drinking water, 0.5% for disinfecting surfaces, etc.).
- Step 3:** Determine the *Volume of Water in Solution*. This is the volume of water that will be added to mix solution, which is likely based on the available container for mixing.
- Step 4:** Determine the *Volume of Bleach Required* or *Mass of Granular Chlorine Required* by reading across the row for the *Desired Concentration of Chlorine Solution* (from **Step 2**) to the given column for the *Volume of Water in Solution* (from **Step 3**).
- Step 5:** Carefully add the chlorine source to the volume of water in the given container.
- Step 6:** Mix chlorine source with the water thoroughly and let sit for at least 30 minutes prior to use.

These chlorine solutions should be prepared fresh daily any time it is used. The chlorine sources that may be commonly available are bleach (sodium hypochlorite), calcium hypochlorite, and ACL56 (dichlor). Household bleach will have varying amounts of sodium hypochlorite. Thus, it is important to identify the percentage on the bottle and use the appropriate table below. Common containers that would be used for mixing are a 5-gallon bucket (20 L), standard barrel (150 L), 55-gallon drum (200 L), and an IBC tank (1,000 L). It should be noted that the *Volume of Bleach Required* and *Mass of Granular Chlorine Required* are rounded up to ensure that the minimum chlorine concentration for the various disinfection applications is reached.

## Bleach

3% Sodium Hypochlorite Bleach Desired Concentration of Chlorine Solution	Volume of Water in Solution					
	20 L	40 L	100 L	150 L	200 L	1000 L
0.5 – 1.0 mg/L	0.7 mL	1.4 mL	3.4 mL	5 mL	6.7 mL	34 mL
500 mg/L (0.05%)	0.4 L	0.7 L	1.7 L	2.5 L	3.4 L	17 L
5000 mg/L (0.5%)	3.4 L	6.7 L	16.7 L	25 L	33.4 L	167 L
10000 mg/L (1%)	6.7 L	13.4 L	33.4 L	50 L	66.7 L	334 L
20000 mg/L (2%)	13.4 L	26.7 L	66.7 L	100 L	133.4 L	667 L

<b>4% Sodium Hypochlorite Bleach</b>		Volume of Water in Solution					
Desired Concentration of Chlorine Solution	20 L	40 L	100 L	150 L	200 L	1000 L	
	Volume of 4% Bleach Required						
0.5 – 1.0 mg/L	0.5 mL	1 mL	2.5 mL	3.8 mL	5 mL	25 mL	
500 mg/L (0.05%)	0.3 L	0.5 L	1.3 L	1.9 L	2.5 L	13 L	
5000 mg/L (0.5%)	2.5 L	5 L	12.5 L	18.8 L	25 L	125 L	
10000 mg/L (1%)	5 L	10 L	25 L	37.5 L	50 L	250 L	
20000 mg/L (2%)	10 L	20 L	50 L	75 L	100 L	500 L	

<b>5% Sodium Hypochlorite Bleach</b>		Volume of Water in Solution					
Desired Concentration of Chlorine Solution	20 L	40 L	100 L	150 L	200 L	1000 L	
	Volume of 5% Bleach Required						
0.5 – 1.0 mg/L	0.4 mL	0.8 mL	2 mL	3 mL	4 mL	20 mL	
500 mg/L (0.05%)	0.2 L	0.4 L	1 L	1.5 L	2 L	10 L	
5000 mg/L (0.5%)	2 L	4 L	10 L	15 L	20 L	100 L	
10000 mg/L (1%)	4 L	8 L	20 L	30 L	40 L	200 L	
20000 mg/L (2%)	8 L	16 L	40 L	60 L	80 L	400 L	

<b>6% Sodium Hypochlorite Bleach</b>		Volume of Water in Solution					
Desired Concentration of Chlorine Solution	20 L	40 L	100 L	150 L	200 L	1000 L	
	Volume of 6% Bleach Required						
0.5 – 1.0 mg/L	0.4 mL	0.7 mL	1.7 mL	2.5 mL	3.4 mL	17 mL	
500 mg/L (0.05%)	0.2 L	0.4 L	0.9 L	1.3 L	1.7 L	9 L	
5000 mg/L (0.5%)	1.7 L	3.4 L	8.4 L	12.5 L	16.7 L	84 L	
10000 mg/L (1%)	3.4 L	6.7 L	16.7 L	25 L	33.4 L	167 L	
20000 mg/L (2%)	6.7 L	13.4 L	33.4 L	50 L	66.7 L	334 L	

<b>7% Sodium Hypochlorite Bleach</b>		Volume of Water in Solution					
Desired Concentration of Chlorine Solution	20 L	40 L	100 L	150 L	200 L	1000 L	
	Volume of 7% Bleach Required						
0.5 – 1.0 mg/L	0.3 mL	0.6 mL	1.5 mL	2.2 mL	2.9 mL	15 mL	
500 mg/L (0.05%)	0.2 L	0.3 L	0.8 L	1.1 L	1.5 L	8 L	
5000 mg/L (0.5%)	1.5 L	2.9 L	7.2 L	10.8 L	14.3 L	72 L	
10000 mg/L (1%)	2.9 L	5.8 L	14.3 L	21.5 L	28.6 L	143 L	
20000 mg/L (2%)	5.8 L	11.5 L	28.6 L	42.9 L	57.2 L	286 L	

8% Sodium Hypochlorite Bleach Desired Concentration of Chlorine Solution	Volume of Water in Solution					
	20 L	40 L	100 L	150 L	200 L	1000 L
0.5 – 1.0 mg/L	0.3 mL	0.5 mL	1.3 mL	1.9 mL	2.5 mL	13 mL
500 mg/L (0.05%)	0.2 L	0.3 L	0.7 L	1 L	1.3 L	7 L
5000 mg/L (0.5%)	1.3 L	2.5 L	6.3 L	9.4 L	12.5 L	63 L
10000 mg/L (1%)	2.5 L	5 L	12.5 L	18.8 L	25 L	125 L
20000 mg/L (2%)	5 L	10 L	25 L	37.5 L	50 L	250 L

## Calcium Hypochlorite

Calcium Hypochlorite (65%) Desired Concentration of Chlorine Solution	Volume of Water in Solution					
	20 L	40 L	100 L	150 L	200 L	1000 L
0.5 – 1.0 mg/L	31 mg	62 mg	154 mg	231 mg	308 mg	1540 mg
500 mg/L (0.05%)	16 g	31 g	77 g	116 g	154 g	770 g
5000 mg/L (0.5%)	154 g	308 g	770 g	1160 g	1540 g	7700 g
10000 mg/L (1%)	308 g	616 g	1540 g	2310 g	3080 g	15400 g
20000 mg/L (2%)	616 g	1240 g	3100 g	4700 g	6200 g	30800 g

## ACL56

ACL56 - Granular Dichlor (56%) Desired Concentration of Chlorine Solution	Volume of Water in Solution					
	20 L	40 L	100 L	150 L	200 L	1000 L
0.5 – 1.0 mg/L	36 mg	72 mg	179 mg	268 mg	358 mg	1790 mg
500 mg/L (0.05%)	18 g	36 g	90 g	134 g	179 g	893 g
5000 mg/L (0.5%)	179 g	358 g	893 g	1340 g	1790 g	8930 g
10000 mg/L (1%)	358 g	715 g	1790 g	2680 g	3580 g	17900 g
20000 mg/L (2%)	715 g	1430 g	3600 g	5400 g	7200 g	35800 g

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