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Calculations for Sanitizing - meta/citric solution

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Know the pH of your water

2015 Water pH: 7.45

1st Calculation: Amount of citric acid added to 1 gallon of water to shift pH below 2.9

1 level teaspoon of citric acid weighs 68 grains or 4.4 grams and reduces the pH to 3.6

2 level teaspoons reduce the pH to 2.90

2 1/2 teaspoons or 11 grams reduce the pH to 2.80

1 level teaspoon = 4.40633 grams

$$\frac{11 \text{ grams}}{\frac{28.35 \text{ grams}}{1 \text{ oz}}} = 0.388 \text{ oz, or } 0.0243 \text{ lb. of citric acid per gallon of water}$$

Citric acid to reduce H_2O pH below 2.9

gal of H_2O	grams of citric acid	Pounds of citric acid		**Potassium metabisulfite to add for a 200 ppm Sanitizing solution**			
(gal)	(gram)	(lb.)		(gram)	(oz)	(lb)	
1	11	0.024		1.33	0.0469	0.00293	(lb)
2	22	0.049		2.66	0.0938	0.00586	Accuracy
3	33	0.073		3.99	0.1407	0.0088	Not
4	44	0.097		5.32	0.1877	0.01173	practical
5	55	0.121		6.65	0.2346	0.01466	
6	66	0.146		7.98	0.2815	0.01759	
7	77	0.170		9.31	0.3284	0.02052	
8	88	0.194		10.64	0.3753	0.02346	
9	99	0.218		11.97	0.4222	0.02639	
10	110	0.243		13.3	0.4691	0.02932	
20	220	0.485		26.6	0.9383	0.05864	
30	330	0.728		39.9	1.4074	0.08796	
40	440	0.970		53.2	1.8765	0.11728	
50	550	1.213		66.5	2.3457	0.1466	
60	660	1.455		79.8	2.8148	0.17593	

2nd Calculation for 200 ppm free SO_2

= 1.328070175

grams/gal.