

How to Use The H₂O Neutralizer Chlorination / DeChlorination Calculator (CDC) Program

Feed Solution Formulas

Just enter your length or total volume in the grand total box and ppm in the proper place and the total will be calculated automatically. You may either save this calculation or you may delete the entries and reuse the program for a different project.

Enter data into **light green** cells for US measurement in gallons. Enter data into the **light blue** cells for liters and metric measurements. Enter your parts per million in the **pink cell**.

Enter
PPM:

PIPELINE LENGTH		Main Size	TOTAL VOLUME *	
FEET	METERS		GALLONS	LITERS
		4		
		6		
		8		
		10		
		12		
		14		
		16		
		18		
		20		
		24		
		30		
		36		
		42		
		48		
		54		
		60		
		64		

* approximate

Time based on filling rate: hours hours

Calculating your total pounds of chlorine based on parts per million (ppm).

Filling rate: GPM L/Min

65% Granular Calcium Hypochlorite: Pound's Kg.'s

Total amount of chlorine: Pound's Kg.'s

12.5% Sodium Hypochlorite required: Gallon's Liter's

Total gallons of feed solution: Gallon's Liter's

Required Cal Hypo per gallon/Ltr: Oz. (5) Gram (5)

9 oz. of Cal Hypo equals 1 US Cup (8oz. - 240 mL). Cup (5) *Cup (5)

Calculating your dechlorination requirements.

No-Chlor - Ascorbic Acid: pound's Kg.'s

No-Chlor - Calcium Thiosulfate: gallon's Liter's

* per 3.785 Ltr.'s

Grand Total: Gallon's
 Liter's

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Rate of Flow Calculator

I.D. of Pipeline: 0.00

Flow Rate ft/s: 0.0

Discharge Rate - GPM: 0

Liters/min: 0

Liters/sec: 0

Cu. Ft./min: 0.0

Enter the inside diameter of your pipeline, then enter the desired rate of flow in feet per second. Your discharge rate will be displayed in the gray areas.

The velocity for preliminary flushing in the main should not be less than 3.0 ft/sec (0.91 m/sec) unless the specifier determines that lower flow rates should be used. Flushing at this velocity should not be done with super chlorinated water.

Filling of the main should be done at a rate to insure that the water within the main will flow at a velocity no greater than 1 ft/sec (0.3 m/sec).

H₂O Neutralizer® Flow Rates BY Orifice Size

Rate (GPM)	Lateral By-Pass Pressure																				
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120
0.75	53	65	75	84	92	100	106	113	119	125	130	136	141	146	150	155	160	164	168	178	184
1.00	116	134	149	164	177	188	200	211	221	231	241	250	259	267	276	284	292	299	314	327	
1.50		301	336	368	398	425	451	475	498	521	542	563	582	602	620	638	656	672	705	736	
2.00		530	598	655	708	756	801	845	886	926	964	1001	1037	1070	1103	1136	1168	1196	1250	1310	
2.50	591	729	830	904	1023	1106	1182	1262	1320	1385	1447	1506	1565	1619	1672	1723	1773	1824	1870	1991	2050
3.00	851	1041	1203	1345	1473	1591	1701	1802	1900	1991	2085	2165	2250	2330	2405	2480	2550	2625	2690	2830	2945
3.50	1418	1638	1830	2025	2188	2315	2455	2590	2710	2835	2955	3075	3200	3325	3445	3570	3690	3840	3945	4015	
4.00		2135	2385	2615	2825	3020	3200	3375	3540	3700	3850	4000	4135	4270	4400	4530	4655	4775	5010	5225	

To convert GPM to Liters/sec. enter the GPM in yellow high-lighted cell _____ Liter's.

3 Feet Per second Flushing Rates		
Pipe Diameter	GPM	L/sec.
4" (100 mm)	120	7.4
6" (150 mm)	260	16.7
8" (200 mm)	470	29.7
10" (250 mm)	730	46.3
12" (300 mm)	1060	66.7
16" (400 mm)	1880	118.6

Filling @ 1 Ft./Sec.	
GPM	L/sec.
40	2.5
90	5.6
160	9.9
250	15.5
360	22.5
630	40

Opening Page

Feed Solution Formulas

Just enter your length or total volume in the grand total box and ppm in the proper place and the total will be calculated automatically. You may either save this calculation or you may delete the entries and reuse the program for a different project.

Enter data into *light green* cells for US measurement in gallons. Enter data into the *light blue* cells for liters and metric measurements. Enter your parts per million in the *pink cell*.

Enter
PPM:

PIPELINE LENGTH		Main Size	TOTAL VOLUME *	
FEET	METERS		GALLONS	LITERS
		4		
		6		
		8		
		10		
		12		
		14		
		16		
		18		
		20		
		24		
		30		
		36		
		42		
		48		
		54		
		60		
		64		

* approximate

Time based on filling rate: hours hours

Calculating your total pounds of chlorine based on parts per million (ppm).

Filling rate: GPM L/Min

65% Granular Calcium Hypochlorite: Pound's Kg.'s

Total amount of chlorine: Pound's Kg.'s

12.5% Sodium Hypochlorite required: Gallon's Liter's

Total gallons of feed solution: Gallon's Liter's

Required Cal Hypo per gallon/Ltr: Oz.⁽¹⁶⁾ Gram.⁽¹⁶⁾

9 oz. of Cal Hypo equals 1 US Cup (8oz. = 240 mL): Cup.⁽¹⁶⁾ *Cup.⁽¹⁶⁾

Calculating your dechlorination requirements.

No-Chlor - Ascorbic Acid: pound's Kg.'s

No-Chlor - Calcium Thiosulfate: gallon's Liter's

* per 3.785 Ltr.'s

Grand Total:

Gallon's
Liter's

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- Only enter data in green, blue or pink cells.
 - You can delete entries and re-enter new data in these cells only.
- Do not delete or change data in white cells.
- If your program is improperly shut down and will not calculate, just delete the program and go to www.h2oneutralizer.com and download a new CDC Calculator Program.

Enter data

Feed Solution Formulas

Just enter your length or total volume in the grand total box and ppm in the proper place and the total will be calculated automatically. You may either save this calculation or you may delete the entries and reuse the program for a different project.

Enter data into *light green* cells for US measurement in gallons. Enter data into the *light blue* cells for liters and metric measurements. Enter your parts per million in the *pink cell*.

PIPELINE LENGTH		Main Size	TOTAL VOLUME *	
FEET	METERS		GALLONS	LITERS
		4		
1,800		6	2,880.0	
3,120		8	9,016.8	
		10		
450		12	2,875.5	
		14		
		16		
		18		
		20		
		24		
		30		
		36		
		42		
		48		
		54		
		60		
		64		

* approximate

Enter PPM:

Time based on filling rate: hours hours

Calculating your total pounds of chlorine based on parts per million (ppm).			
Filling rate:	<input type="text"/>	GPM	L/Min
65% Granular Calcium Hypochlorite:	<input type="text"/>	Pound's	Kg 's
Total amount of chlorine:	<input type="text"/>	Pound's	Kg 's
12.5% Sodium Hypochlorite required:	<input type="text"/>	Gallon's	Liter's
Total gallons of feed solution:	<input type="text"/>	Gallon's	Liter's
Required Cal Hypo per gallon/Ltr:	<input type="text"/>	Oz. (16)	Gram's
9 oz. of Cal Hypo equals 1 US Cup (8oz. = 240 mL)	<input type="text"/>	Cup (16)	*Cup (16)

Calculating your dechlorination requirements.			
No-Chlor - Ascorbic Acid:	<input type="text"/>	pound's	Kg 's
No-Chlor - Calcium Thiosulfate:	<input type="text"/>	gallon's	Liter's

* per 3,785 Ltr.'s

Grand Total: Gallon's

Liter's

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- Enter your footage by pipe size or click on the 'Grand Total' cell and enter your total amount of water you will be treating; gallons in green cells or liters blue cells.

Determine your chlorine requirements

Feed Solution Formulas

Just enter your length or total volume in the grand total box and ppm in the proper place and the total will be calculated automatically. You may either save this calculation or you may delete the entries and reuse the program for a different project.

Enter data into *light green* cells for US measurement in gallons. Enter data into the *light blue* cells for liters and metric measurements. Enter your parts per million in the *pink cell*.

Enter PPM:

PIPELINE LENGTH		Main Size	TOTAL VOLUME *	
FEET	METERS		GALLONS	LITERS
		4		
1,800		6	2,880.0	
3,120		8	9,016.8	
		10		
450		12	2,875.5	
		14		
		16		
		18		
		20		
		24		
		30		
		36		
		42		
		48		
		54		
		60		
		64		

* approximate

Time based on filling rate: hours hours

Calculating your total pounds of chlorine based on parts per million (ppm).

Filling rate:	<input type="text" value="9.5"/>	GPM	<input type="text"/>	L/Min
65% Granular Calcium Hypochlorite	<input type="text" value="6.2"/>	Pound's	<input type="text"/>	Kg 's
Total amount of chlorine	<input type="text" value="4.9"/>	Pound's	<input type="text"/>	Kg 's
12.5% Sodium Hypochlorite required	<input type="text"/>	Gallon's	<input type="text"/>	Liter's
Total gallons of feed solution	<input type="text"/>	Gallon's	<input type="text"/>	Liter's
Required Cal Hypo per gallon/Ltr	<input type="text"/>	Oz (16)	<input type="text"/>	Gram (100)
8 oz. of Cal Hypo equals 1 US Cup (8oz. = 240 mL)	<input type="text"/>	Cup (16)	<input type="text"/>	*Cup (16)

Calculating your dechlorination requirements.

No-Chlor - Ascorbic Acid:	<input type="text" value="15.4"/>	pound's	<input type="text"/>	Kg 's
No-Chlor - Calcium Thiosulfate:	<input type="text" value="2.5"/>	gallon's	<input type="text"/>	Liter's

* per 3.785 Ltr's

Grand Total: Gallon's
 Liter's

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- Enter your Parts per Million of chlorine that you want to chlorinate too or dechlorinate in the pink box labeled 'Enter PPM'.
- After you enter your PPM, the purple and yellow areas will fill in automatically.
- You will be given necessary amount of both sodium hypochlorite and calcium hypochlorite (purple section) needed for proper chlorination.
- Your dechlorination choices (yellow section) will be displayed for calcium thiosulfate solution and ascorbic acid.

Determining your production time

Feed Solution Formulas

Just enter your length or total volume in the grand total box and ppm in the proper place and the total will be calculated automatically. You may either save this calculation or you may delete the entries and reuse the program for a different project.

Enter data into *light green* cells for US measurement in gallons. Enter data into the *light blue* cells for liters and metric measurements. Enter your parts per million in the *pink cell*.

Enter PPM: 50

Time based on filling rate: 1.2 hours

PIPELINE LENGTH		Main Size	TOTAL VOLUME *	
FEET	METERS		GALLONS	LITERS
		4		
1,800		6	2,880.0	
3,120		8	9,016.8	
		10		
450		12	2,875.5	
		14		
		16		
		18		
		20		
		24		
		30		
		36		
		42		
		48		
		54		
		60		
		64		

* approximate

Calculating your total pounds of chlorine based on parts per million (ppm).			
Filling rate:	200	GPM	L/Min
65% Granular Calcium Hypochlorite:	9.5	Pound's	Kg's
Total amount of chlorine:	6.2	Pound's	Kg's
12.5% Sodium Hypochlorite required:	4.9	Gallon's	Liter's
Total gallons of feed solution:	74	Gallon's	Liter's
Required Cal Hypo per gallon/Ltr:	2	OZ (oz)	Gram's
1 oz of Cal Hypo equals 1 US Cup (8oz. = 240 mL)	0.2	Cup	*Cup (oz)

Calculating your dechlorination requirements.			
No-Chlor - Ascorbic Acid:	15.4	pound's	Kg's
No-Chlor - Calcium Thiosulfate:	2.5	gallon's	Liter's

* per 3,785 Ltr.'s

Grand Total: 14,772.3 Gallon's

Liter's

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- To calculate the time required to complete the task, enter the flow rate you are planning to chlorinate or dechlorinate at in the green or blue cell in the purple section labeled 'Filling rate'.
- The cell labeled 'Time based on filling rate' displays the time to process the total amount of water at the given filling rate.
- The cell labeled 'Total gallons of feed solution' is based on having the control valve wide open, drawing in one gallon per minute of feed solution.
- The next cell determines the solution mix of Cal Hypo with water. See E-Newsletter 'Chlorination Chemicals' on how to make chlorine solution using Cal Hypo.
- In many cases the specifier has set limits on filling and flushing, if that is the case use our 'Rate of Flow Calculator' Program on page two of this spreadsheet to determine proper flow rate for assuring you stay within these limits.

Calculating your flow rates by pipe size

Rate of Flow Calculator

I.D. of Pipeline: 0.00

Flow Rate ft/s: 0.0

Discharge Rate - GPM: 0

Liters/min: 0

Liters/sec: 0.0

Cu. Ft./min: 0.0

Enter the inside diameter of your pipeline, then enter the desired rate of flow in feet per second. Your discharge rate will be displayed in the gray areas.

The velocity for preliminary flushing in the main should not be less than 3.0 ft/sec (0.91 m/sec) unless the specifier determines that lower flow rates should be used. Flushing at this velocity should not be done with **super chlorinated water**.

Filling of the main should be done at a rate to insure that the water within the main will flow at a velocity no greater than 1 ft/sec (0.3 m/sec).

3 Feet Per second Flushing Rates		
Pipe Diameter	GPM	L/sec.
4" (100 mm)	120	7.4
6" (150 mm)	260	16.7
8" (200 mm)	470	29.7
10" (250 mm)	730	46.3
12" (300 mm)	1060	66.7
16" (400 mm)	1880	118.6

Filling @ 1 Ft./Sec.	
GPM	L/sec.
40	2.5
90	5.6
160	9.9
250	15.5
360	22.5
630	40

- The calculator can be used by entering your pipe ID and the feet per second flow rate into the yellow cells.
- The gray cells fill automatically with your information.
- We have provided flow requirements for standard flushing and filling rates in separate charts.

Flow Rates by Orifice Size

H₂O Neutralizer[®] Flow Rates (GPM) BY Orifice Size *

		Lateral By-Pass Pressure																				
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120
Orifice size	0.75	53	65	75	84	92	100	106	113	119	125	130	136	141	146	150	155	160	164	168	176	184
	1.00		116	134	149	164	177	188	200	211	221	231	241	250	259	267	276	284	292	299	314	327
	1.50			301	336	368	398	425	451	475	498	521	542	563	582	602	620	638	656	672	705	736
	2.00			535	598	655	708	756	801	845	886	926	964	1001	1037	1070	1103	1136	1168	1196	1255	1310
	2.50	591	723	835	934	1023	1106	1182	1252	1320	1385	1447	1506	1565	1619	1672	1723	1773	1824	1870	1961	2050
	3.00	851	1041	1203	1345	1473	1591	1701	1802	1900	1991	2085	2165	2250	2330	2405	2480	2550	2625	2690	2820	2945
	3.50		1418	1638	1830	2005	2168	2315	2455	2590	2710	2835	2950	3065	3170	3280	3375	3475	3570	3660	3840	4015
	4.00			2135	2385	2615	2825	3020	3200	3375	3540	3700	3850	4000	4135	4270	4400	4530	4655	4775	5010	5225

* All values in main grid area indicate gallons per minute of flow.

To convert GPM to Liters/sec. enter the GPM in yellow **high-lighted cell**:

_____ L/sec.

- Compare orifice opening size with By-Pass pressure gauge to determine the approximate rate of flow (GPM).
- Convert flow to L/sec by entering the GPM rate into the yellow cell.

H₂O Neutralizer[®] Flow Rates (GPM) BY Orifice Size *

		Lateral By-Pass Pressure																				
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120
Orifice size	0.75	53	65	75	84	92	100	106	113	119	125	130	136	141	146	150	155	160	164	168	176	184
	1.00		116	134	149	164	177	188	200	211	221	231	241	250	259	267	276	284	292	299	314	327
	1.50			301	336	368	398	425	451	475	498	521	542	563	582	602	620	638	656	672	705	736
	2.00			535	598	655	708	756	801	845	886	926	964	1001	1037	1070	1103	1136	1168	1196	1255	1310
	2.50	591	723	835	934	1023	1106	1182	1252	1320	1385	1447	1506	1565	1619	1672	1723	1773	1824	1870	1961	2050
	3.00	851	1041	1203	1345	1473	1591	1701	1802	1900	1991	2085	2165	2250	2330	2405	2480	2550	2625	2690	2820	2945
	3.50		1418	1638	1830	2005	2168	2315	2455	2590	2710	2835	2950	3065	3170	3280	3375	3475	3570	3660	3840	4015
	4.00			2135	2385	2615	2825	3020	3200	3375	3540	3700	3850	4000	4135	4270	4400	4530	4655	4775	5010	5225

* All values in main grid area indicates gallons per minute of flow.

To convert GPM to Liters/sec. enter the GPM in yellow **high-lighted cell**:

_____ 2.5 L/sec.

ALWAYS CLOSE PROGRAM AND RE-OPEN BEFORE STARTING A NEW PROJECT.