LOVIBOND® BALANCED WATER TEST KIT 411290

FREE CHLORINE TEST

1. Fit the chlorine disc into Comparator. Rinse the two 10ml. cells thoroughly with the sample, leave one filled to the 10ml. mark and place it in the left-hand compartment of the Comparator to act as a 'blank' behind the colour standards.
2. Leave a few drops of sample in the second cell and add a DPD No.1 tablet. Crush with a clean stirring rod.
3. Make up to the 10ml. mark with the sample, mix thoroughly and place the cell in the right-hand compartment of the Comparator. If pink colour disappears, this indicates very high chlorine.
4. Match immediately by rotating the disc until a colour match is found.
5. The value displayed in the bottom right aperture is the **free chlorine concentration** in mg./l..

Note: If a deep red colour appears in the first few drops, but disappears when the volume is made up to 10ml., a high level of chlorine is present and the test should be repeated with the sample diluted with tap water. Dilution and retesting is also recommended if the colour is deeper than the highest value of the disc.

COMBINED CHLORINE TEST

1. After the free chlorine reading is taken, add a DPD No.3 tablet to the cell containing the dissolved No.1 tablet and crush with a clean stirring rod and mix.
2. After two minutes match against the disc. This reading is the **total chlorine** in mg./l.. The difference between the two readings is the **combined chlorine.**
3. Wash out cell after test using the brush provided.

pH TEST

1. Fit the pH disc into Comparator. Rinse two 13.5mm./10ml. cells thoroughly with sample. Fill both cells to the 10ml. mark and place one in the left-hand compartment of the Comparator to act as a 'blank' behind the colour standards.
2. To the other cell add one Phenol Red tablet. Crush and mix to dissolve with a clean stirring rod.
3. Place the cell in the right-hand compartment of the Comparator and rotate the disc until a colour match is found. The value displayed in the bottom right aperture is the pH of the sample

TOTAL ALKALINITY TEST

1. Rinse the calibrated shaker tube with pool water and then fill to the 50ml. mark.
2. Add one Total Alkalinity tablet and shake thoroughly to disintegrate.
3. Continue adding these tablets one at a time with thorough shaking until the yellow colour changes to pink. Note the total number of tablets added

4 Total Alkalinity in mg/l as $CaCO_3$ = (No. of tablets x 40) - 20

Wash out the shaker tube after testing.

WATER BALANCE (LANGELIER SATURATION INDEX)

To calculate the water balance (saturation index) the following tests are required:-

TEST	TARGET VALUE
pH	7.0 - 7.6
Temperature	Normal operational
Calcium Hardness	200mg/l minimum
Total Alkalinity	80 - 120mg/l
Total Dissolved Solids	less than 1500mg/l

CALCIUM HARDNESS TEST

1. Rinse the calibrated shaker tube with pool water and then fill to the 50ml. mark.
2. Add one Calcium Hardness Tablet and shake thoroughly to disintegrate.
3. Continue adding these tablets one at a time with thorough shaking until the pink colour changes to violet. Note the total number of tablets added.
4. Calcium Hardness in mg/l as $CaCO_3$ = (No of tablets x 40) - 20

Wash out the shaker tube after testing.

From the test results use the table below to obtain factors for:

Temperature	(T.F.)
Calcium Hardness	(C.F.)
Total Alkalinity	(A.F.)
Total Dissolved Solids *	(TDS)

TEMPERATURE C°	TEMPERATURE F°	T.F.	CALCIUM HARDNESS mg./l. as $CaCO_3$	C.F.	TOTAL ALKALINITY mg./l. as $CaCO_3$	A.F.	TOTAL DISSOLVED SOLIDS mg/l	TDS FACTOR
0	32	0.0	50	1.3	5	0.7	0	12.0
3	37	0.1	75	1.5	25	1.4	1000	12.1
8	46	0.2	100	1.6	50	1.7	2000	12.2
12	53	0.3	150	1.8	75	1.9	3000	12.25
16	60	0.4	200	1.9	100	2.0	4000	12.3
19	66	0.5	250	2.0	125	2.1	5000	12.35
24	76	0.6	300	2.1	150	2.2	6000	12.4
29	84	0.7	400	2.2	200	2.3		
34	94	0.8	600	2.35	300	2.5		
41	105	0.9	800	2.5	400	2.6		
53	128	1.0	1000	2.6	800	2.9		

CALCULATION

Saturation index = pH value + T.F. + C.F. + A.F. - T.D.S. Factor e.g. at pH = 7.2, Temp = 29deg C, Calcium Hardness = 400, Total Alkalinity = 100, TDS = 1,000
Saturation Index = 7.2 + 0.7 + 2.2 + 2.0 – 12.1 = Zero

NOTE:- **1)** A high alkalinity (A.F.) is no compensation for a low calcium hardness (C.F.)
2) If the Index is zero the water is in perfect balance.
If it is negative, the water is aggressive and tends to be corrosive.
If it is positive the water is non aggressive but has the ability to lay down scale.
It is advisable to aim for a low positive reading.

Download the **FREE** Balanced Water App: **PoolM8**

Available on the App Store | Google play

Watch the Balanced Water Video: **Lovibond® Swimming Pool and Spa Water Testing**

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