Lovibond®

INSTRUCTIONS FOR DRINKING WATER KIT 413570

Fluoride using disc NOM range 0 - 1.6mg./l.

1. Fit disc NOM into the Comparator.

2. Pour 50ml. of sample into a Nessler cylinder and add one Excess Al tablet. Crush with a clean stirring rod and mix thoroughly. Any turbidity at this stage can be ignored.

3. Pour 50ml.of the sample into a second Nessler cylinder and add one A-Z tablet to both cylinders. Crush tablets and mix thoroughly. Note: Rinse stirring rod thoroughly before transferring between cylinders.

4. In the left-hand compartment of the Nessler 50, place a third cylinder containing 50ml. of sample only.

5. Place one of the cylinders containing sample and reagent in the right-hand compartment. Fit the Comparator onto the Nessler 50 and allow to stand until the developing colour in the right-hand tube is within the range of standards on the disc (between 15 and 60 minutes - see Note 1).

6. Place the cylinders in turn in the Nessler 50, match the colours in both cylinders against the disc using North Daylight* and note the readings. The difference in readings is the Fluoride content of the sample, expressed in mg./l..

NOTES

1. Allowing the samples to stand too long will result in the Excess Al colour being deeper than the lowest standard. Too short a time will result in the colour in the second cylinder being lighter than the highest standard

2. To check the Fluoride Dose at the Treatment Works, determine Total Fluoride before and after Fluoridation. The difference represents artificially added Fluoride.

Chlorine using disc 3/40E range 0.02 - 0.3mg./l.

1. Fit the 3/40E disc into the Comparator. Place a 40mm. cell containing 20ml. sample in the left-hand compartment of the Comparator.

2. Rinse out another 40mm. cell with sample, leaving a few drops in the bottom. Add **two** DPD No.1 tablets and crush with a clean stirring rod. Make the volume up to the 20ml. mark with sample and mix well to dissolve.

3. Place this cell in the right-hand compartment and hold the Comparator facing North Daylight, rotating the disc until the nearest colour match is obtained.

4. The figure shown in the bottom right-hand corner of the Comparator is the concentration of **free chlorine** in mg./l..

5. To test for **total chlorine**, add two DPD No. 3 tablets to the tube already treated with the D.P.D.No.1 tablet. Crush and mix to dissolve

6. Leave for 2 minutes and take a second reading. This is the **total chlorine** concentration in mg./l..

7. The **combined chlorine** is (total chlorine – free chlorine).

The Tintometer Ltd • Tel: +44 1980 664800 • Fax: +44 1980 625412 • Email: sales@tintometer.com

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Hardness range 0 - 500 mg./l. as $CaCO_3$

The test is normally carried out on a 50ml. sample, although a larger sample may be used if a lower test range is required.

Test Range	Sample Size Required
0 - 500mg./l.	50ml.
0 - 250mg./l.	100ml.
0 - 100mg/l.	200ml.

1. Measure the sample size appropriate to the expected hardness value into the graduated shaker tube (if a 200ml sample has to be taken use the shaker tube to measure 2 x 100ml. into a clear stoppered glass or plastic stoppered bottle).

2. Add one Total Hardness tablet, replace stopper and shake to disintegrate.

3. Continue adding tablets in this manner, one at a time, until the colour changes from plum red to blue.

4. Note the number of tablets used and calculate the Total Hardness in mg./l. as $CaCO_3$

50ml. sample	=	(No. tablets x 40) - 20
100ml. sample	=	(No. tablets x 20) - 10
200ml.sample	=	(No. tablets x 10) - 5

NOTE

It is normal practice to express the result of hardness tests in terms of mg./l. $CaCO_3$. This is merely a conversion to allow the comparison of different results and does not necessarily indicate that the hardness is present in the water in this form.

Hazen using disc NSA range 5 - 70 units

1. Fit the NSA disc into the Comparator.

2. Fill a 50ml. Nessler cylinder with sample and place in the right-hand compartment of the Nessler 50.

3. Fit the Comparator onto the Nessler 50 and facing North Daylight* rotate the disc until the nearest colour match is obtained.

4. Read off the result in Hazen Units in the bottom right-hand corner of the Comparator.

Chloride range 0 - 200mg./l.

1. Take a 50ml. sample in the calibrated shaker bottle and add one Chloride tablet, replace stopper and shake to disintegrate.

2. Continue adding tablets in this manner, one at a time, until the colour changes from yellow to brown.

3. The Chloride concentration = (No.of tablets x 20) - 20 mg./l., as Cl (Chloride ion)

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Chlorine using disc 3/40B range 0.2 - 4.0mg./l

1. Fit the 3/40B disc into the Comparator. Place a 13.5mm./10ml. moulded cell containing the sample in the left-hand compartment of the Comparator.

2. Rinse out another cell with sample leaving a few drops in the bottom. Add a DPD No.1 tablet and crush with a clean stirring rod. Make the volume up to 10ml.with sample and mix well to dissolve.

3. Place the cell in the right-hand compartment and holding the Comparator facing North Daylight*, rotate the disc until the nearest colour match is obtained.

4. The figure shown in the bottom right-hand corner of the Comparator is the concentration of **free chlorine** in mg./l..

5. Remove the cell containing the DPD No.1 tablet and add one DPD No.3 tablet. Crush and mix to dissolve. Allow to stand for two minutes.

6. Place the cell in the right-hand side of the Comparator and match as before. This reading is the concentration of **total chlorine** in mg./l..

7. For combined chlorine subtract the free chlorine reading from the total chlorine reading. The is the concentration of **combined chlorine** in mg./l..

pH using discs 2/1H (range 6.0 - 7.6) and 2/1J (range 6.8 - 8.4)

1. Fit the appropriate pH disc into the Comparator.

2. Fill two 13.5mm./10ml. moulded cells to the 10ml. mark with sample and place one cell in the left-hand compartment of the Comparator.

3. To the other cell, add the appropriate pH tablet i.e. Phenol Red for disc 2/1J: Bromothymol Blue for disc 2/1H. Crush with a clean stirring rod and mix well to dissolve.

4. Place the cell in the right-hand compartment and holding the Comparator facing North Daylight*, rotate the disc until the nearest colour match is found.

5. The pH value of the sample is then given in the bottom right-hand corner of the Comparator.

***NORTH DAYLIGHT**

The correct light source must be used when matching colours in the Comparator; North Daylight is acceptable; the portable Lovibond® Daylight Unit or the Lovibond® Daylight 2000 are recommended.

Tests conducted in the Southern Hemisphere require South Daylight instead of North Daylight.

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