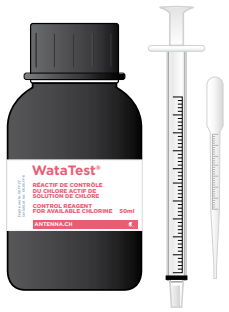
ANTENNA FOUNDATION

WataTest®

OPERATING INSTRUCTIONS

NAOCL, HTH, NADCC AND BLEACH



WATA®'s quality control of the sodium hypochlorite solution is essential in determining the dosage to be applied, depending on its usage.

This reagent allows to determine the concentration of chlorine in grams per litre (Cl_2, $HOCl$, OCl^-) within a range of 1 to 7 g/L (0.1 to 0.7% active chlorine and 0.32 to 2.23 °Cl) with an accuracy of ± 0.5 g / L.

The ideal result for the production of sodium hypochlorite should be 6 g/L. If you get a different concentration, please adjust the sodium hypochlorite dilution in the water to be treated or repeat the process with a new salt solution.

- **Always use a clean, dry syringe to withdraw the WataTest® reagent.**
- **The pH of the solution to be analysed must be less than 11.42 (WataTest® validity range). This is the case with sodium hypochlorite produced by WATA®.**
- **Keep the WataTest® reagent away from light and at room temperature (approximately 25°C).**
- **Close the bottle firmly after each usage to prevent the liquid oxidising.**
- **Observe the expiry date stated on the label of the WataTest® bottle.**
- **When testing calcium hypochlorite powder for which the percentage of available chlorine is unknown, follow the instructions on the last page.**

1. USE OF WATATEST WITH SODIUM HYPOCHLORITE, NADCC (SODIUM DICHLOROISOCYANURATE) OR CALCIUM HYPOCHLORITE WITH ≥ 65% OF ACTIVE CHLORINE (HTH)

- **If you use NaDCC or HTH, prepare the solution beforehand (powder + clear water*) to be tested (e.g. 10 g powder per 1 litre of clean water).**

Materials: WataTest® reagent, 1 ml syringe, graduated pipette, small white plastic spoon.

1. Thoroughly mix the concentrated solution of chlorine (0.1 to 0.7%) you wish to test.
2. Using the graduated plastic pipette draw up **exactly 2 mL** of this concentrated solution and release them into the provided spoon or a small container with a white base.
3. Shake the WataTest® reagent bottle.
4. Fill the syringe with the WataTest® reagent and get ready to count the number of drops that will be used.
5. Holding the syringe vertically, then drip the WataTest reagent drop by drop into the white cup or small bowl and count the number of drops used to change the colour of the solution. Divide this number by two to get the concentration in grams of chlorine per litre (e.g. 12 drops = 6 g/L).

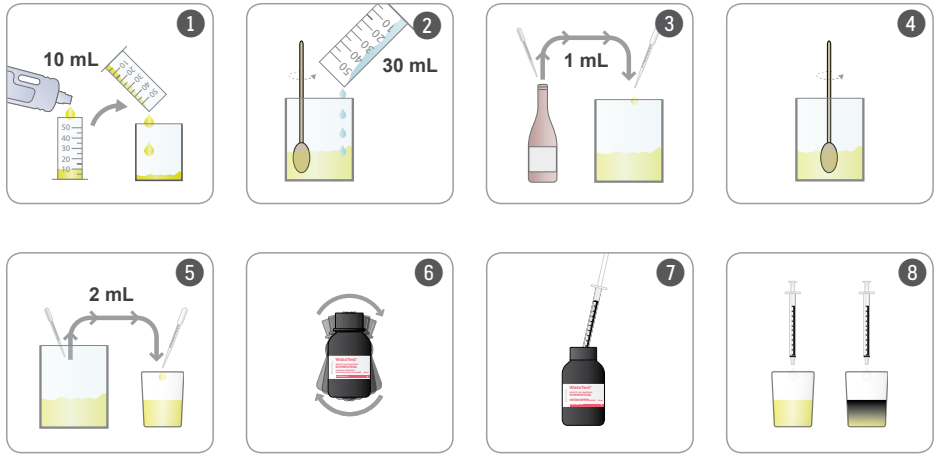
- **Shake gently after each drop. If the solution in the cup or the small white container returns to its transparent colour, keep adding just one more drop until the colour change is irreversible. Keep the WataTest® reagent away from light and at room temperature (approximately 25°C).**

*Definition of clear water: < 5 Nephelometric turbidity units (NTU), pH between 6.5 and 8.5

2. USING WATATEST WITH BLEACH (~ 2.5% OF ACTIVE CHLORINE) OR CALCIUM HYPOCHLORITE WITH <65% OF ACTIVE CHLORINE (BLEACHING POWDER)

⚠ **If you use bleaching powder, prepare the solution beforehand (powder + clear water*) to be tested (e.g.: 10 g powder per 1 litre of clean water), draw up 40mL and skip to Step 3**

Materials: WataTest® reagent, 1 ml syringe, graduated pipette, small white plastic spoon, graduated 50 mL cylinder (not supplied), 100mL beaker (not supplied).



1. Take 10 mL ± 1 mL of bleach to analyse and add to the beaker.
2. Add 30 mL ± 1 mL of clear water* to the beaker and mix well.
3. Add 1 mL ± 0.1 mL of vinegar to acidify the 40mL solution.

⚠ **If the vinegar contains suspended solids, decant the vinegar and strain through a cloth.**

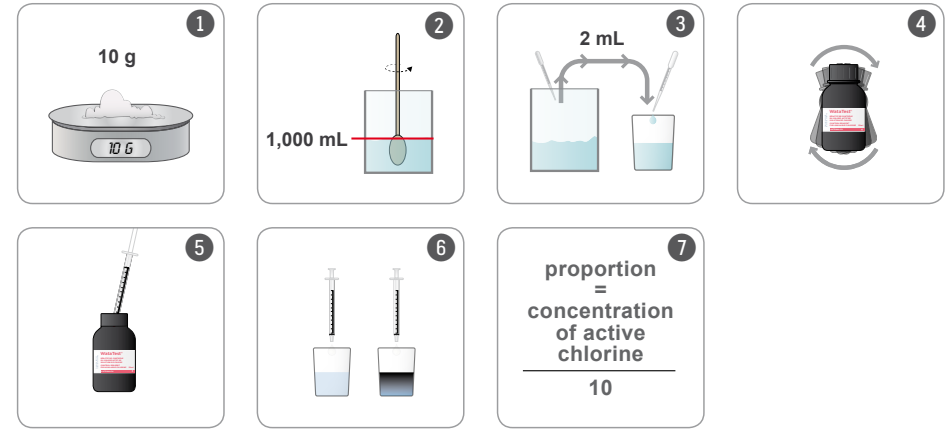
⚠ **It is recommended that you measure the pH of the solution (WataTest® works only below pH 11.42).**

4. Thoroughly mix the concentrated solution of acidified active chlorine you wish to test.
5. Using the graduated plastic pipette, draw up **exactly 2 mL** of this concentrated solution and release them into the provided spoon or a small container with a white base.

*Definition of clear water: < 5 Nephelometric turbidity units (NTU), pH between 6.5 and 8.5

3. DETERMINATION OF THE ACTIVE CHLORINE CONTENT AS A PERCENTAGE IN CALCIUM HYPOCHLORITE POWDER WITH AN UNKNOWN PERCENTAGE OF ACTIVE CHLORINE

Materials: WataTest® reagent, 1 ml syringe, graduated pipette, small white plastic spoon, graduated 1,000 mL cylinder (not supplied), precision balance with an accuracy of ± 1 g (not supplied).



1. Weigh 10 g ± 1 g of powder to be analysed and place into the graduated cylinder. If you do not have a scale accurate to ± 1 g, ask the nearest pharmacy to carry out the weighing.
2. Add 1,000 mL ± 10 mL of clear water* to the graduated cylinder and mix until the hypochlorite has been dissolved
3. Draw up **exactly 2 mL** of this concentrated solution and release them into the provided spoon or a small container with a white base.
4. Shake the WataTest® reagent bottle.
5. Fill the syringe with the WataTest® reagent and get ready to count the number of drops that will be used.
6. Holding the syringe vertically drip the WataTest® reagent drop by drop into the white cup or small bowl and count the number of drops used to change the colour of the solution.Divide this number by two to get the concentration in grams of chlorine per litre (e.g. 13 drops = 6.5 g/L).

*Definition of clear water: < 5 Nephelometric turbidity units (NTU), pH between 6.5 and 8.5

6. Shake the WataTest reagent bottle.
7. Fill the syringe with the WataTest® reagent and get ready to count the number of drops that will be used.
8. Holding the syringe vertically drip the WataTest® reagent drop by drop into the white cup or small bowl and count the number of drops used to change the colour of the solution. Divide by two to get the concentration in grams of chlorine per litre (e.g. 12 drops = 6 g/L).

⚠ **Shake gently after each drop. If the solution in the cup or the small white container returns to its transparent colour, keep adding just one more drop until the colour change is irreversible.**

⚠ **For bleach, to obtain the active chlorine concentration in the bottle, multiply the number of drops of reagent WataTest® by 2 (e.g. 12 drops = 24 g/L). This will yield the quantity of active chlorine in the bottle of bleach.**

⚠ **Shake gently after each drop. If the solution in the cup or the small white container returns to its light colour, keep adding just one more drop until the colour change is irreversible.**

7. To obtain the concentration of active chlorine contained in the calcium hypochlorite powder divide the value obtained by the WataTest® by the amount of calcium hypochlorite in the solution in g/L (e.g. 6.5 g/L ÷ 10g/L = 0.65 = 65% of active chlorine). Depending on the percentage of active chlorine in the calcium hypochlorite, the next step to be followed in analysing the solution depends on whether the calcium hypochlorite contains ≥ 65% active chlorine (use Procedure 1 on Page 2) or the calcium hypochlorite contains < 65% active chlorine (use Procedure 2 on Page 3).

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