Instruction Manual

HI 38086
Calcium
Test Kit for
Irrigation Water

PEWA
Messtechnik GmbH

Weidenweg 21
58239 Schwerte

Tel.: 02304-96109-0
Fax: 02304-96109-88
E-Mail: info@pewa.de
Homepage : www.pewa .de

Dear Customer,

Thank you for choosing a Hanna Product.

Please read the instruction sheet carefully before using the test kit. It will provide you with the necessary information for correct use of the kit. If you need additional information, do not hesitate to e-mail us at tech@hannainst.com.

Remove the test kit from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna office immediately.

Each kit is supplied with:

- Buffer Reagent, 1 bottle with dropper (30 mL);
- Oxalate Reagent, packet powder (100 pcs);
- Deionized Water, 1 bottle (500 mL);
- 1 long glass test tube (50 mL);
- 1 calibrated plastic vessel (50 mL);
- 1 long plastic pipette (1 mL);
- 1 plastic spoon;
- 1 graduated card;
- 1 line card.

Note: Any damaged or defective item must be returned in its original packing materials.

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SPECIFICATIONS

Range	0 to 125 mg/L (ppm) as Ca
	0 to 250 mg/L (ppm) as Ca
Smallest Increment	1 mg/L [in the 0-125 mg/L range]
	2 mg/L [in the 0-250 mg/L range]
Analysis Method	Turbidimetric
Sample Size	50 mL or 25 mL
Number of Tests	100
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	950 g (33.5 oz.)

SIGNIFICANCE AND USE

Calcium presence in water supplies results from passage over deposits of limestone, dolomite, gypsum and gypsiferous shale. Its concentration may extend from 0 to several hundred milligrams per liter, depending on its source and treatment. Calcium is necessary in plant and animal nutrition since it is an essential constituent of bones, shells and plant structures.

Calcium in water as carbonate is one of the primary components of water hardness which can cause pipe or tube scaling.

Note: mg/L is equivalent to ppm (parts per million).

CHEMICAL REACTION

The Hanna Test Kit determines Calcium in irrigation water via a turbidimetric method. Hanna reagents react selectively with calcium to form a white suspension. The developed turbidity is proportional to calcium concentration.
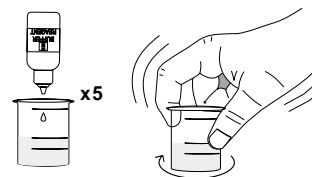
INSTRUCTIONS

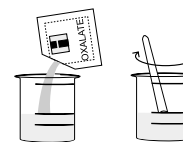READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

1- Fill the plastic vessel with 50 mL of water sample (up to the mark).

2- Add 5 drops of Buffer Reagent and swirl to mix. **x5**

3- Add 1 packet of Oxalate Reagent and mix for 30 seconds with the plastic spoon. Some deposits may remain, but they do not affect the measurement.

4- Wait for 5 minutes to allow reaction to complete. If Calcium is present, the solution will become turbid.

5- Using the spoon, swirl gently the reacted sample.

6- Place the glass test tube on the *Line card* and look from the top of the tube at one of the black stripes on the *Line card*. Use the pipette to fill the tube with the reacted sample until the black stripe completely disappears. To help in detecting the endpoint, move the test tube from one black stripe to the other until they are both no longer visible.
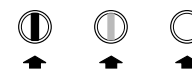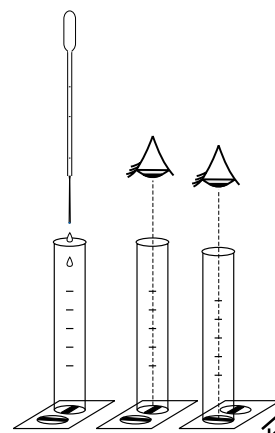
7- Hold the tube close to the *Graduated card* as shown in the figure.
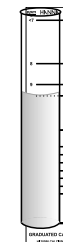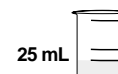
8- Read directly from the *Graduated card* the concentration in mg/L (ppm) of calcium that corresponds to the level of the liquid in the test tube.
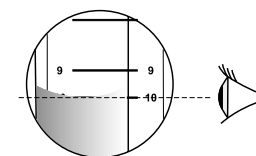
9- In case the black stripe on the *Line card* disappears with the liquid level under the 125 ppm mark, the calcium concentration is higher than 125 ppm and the original sample needs to be diluted. In this case perform the test as follows.

10- Fill the plastic vessel with water sample up to the 25 mL mark. **25 mL**

11- Add Deionized Water up to the 50 mL mark.

12- Follow the instructions from step 2 to step 7.

13- Read from the *Graduated card* the value in correspondence of the level of the liquid in the test tube and multiply it by 2 to obtain the concentration in mg/L (ppm) of calcium.

14- To convert the reading in mg/L of $CaCO_3$, multiply the mg/L of calcium by 2.5.

15- Rinse all labware with demineralized water after each analysis and shake dry.

REFERENCES

Vogel's, *Textbook of Quantitative Chemical Analysis*, 5th Ed., Longman Scientific & Technical.

HEALTH AND SAFETY

The chemicals contained in this kit may be hazardous if improperly handled. Read the relevant Health and Safety Data Sheet before performing this test.