

Instruction Manual

HI 38082 Potassium Test Kit for Soil



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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 chemical 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:

- Formaldehyde Solution, 4 bottles with dropper (4 x 25 mL);
- HI 38082A-0 Alkaline Solution, 3 bottles (3 x 100 mL);
- HI 38082B-0 Potassium Reagent, packets (100 pcs);
- 1 long glass test tube (50 mL);
- 1 calibrated plastic vessel (50 mL);
- 1 long plastic pipette (1 mL);
- 1 plastic pipette (3 mL);
- 1 syringe (1 mL) with tip;
- 1 spoon;
- 1 graduated card;
- 1 point card.

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

ISTR38082 10/00 PRINTED IN ITALY

SPECIFICATIONS

Range	0 to 50 mg/L (ppm) as K 50 to 250 mg/L (ppm) as K
Smallest Increment	5 mg/L [in the 0-50 mg/L range] 25 mg/L [in the 50-250 mg/L range]
Analysis Method	Turbidimetric
Sample Size	3 mL and 0.6 mL
Number of Tests	100
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	889.0 g (31.3 oz.)

SIGNIFICANCE AND USE

Potassium is present in tissues responsible for the growth of plants (primary and secondary meristems). It plays an important role in how much water is absorbed by the roots and in the regulation of cellular activity. In addition, potassium makes plants more resistant to diseases and yields a positive effect on the color and fragrance in flowers. The problem of lack of potassium is quite frequent in calcareous soils.

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

CHEMICAL REACTION

The Hanna Test Kit determines Potassium in soil via a turbidimetric method. Potassium is precipitated in a basic environment with sodium tetraphenylborate. The developed turbidity is proportional to potassium concentration.

INSTRUCTIONS

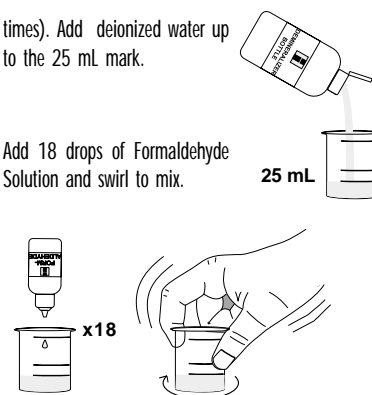
READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

- 1- Obtain a Mehlich extract from the soil sample by performing the Mehlich extraction.
- 2- Using the syringe, add 3 mL of soil extract to the plastic vessel (a full syringe contains 1 mL of solution, hence repeat 3

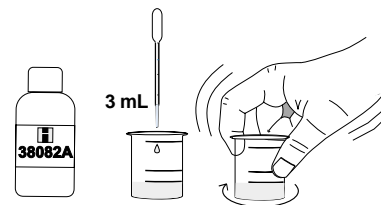


times). Add deionized water up to the 25 mL mark.

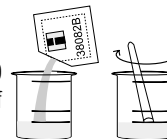
- 3- Add 18 drops of Formaldehyde Solution and swirl to mix.



- 4- Using the short plastic pipette, add 3 mL of HI 38082A-0 Alkaline Solution and swirl to mix.



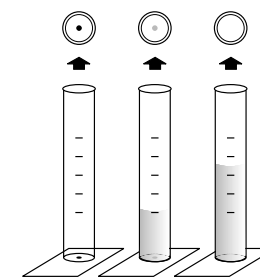
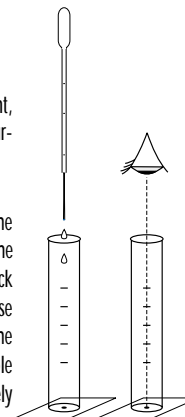
- 5- Add 1 packet of HI 38082B-0 reagent and mix by means of the spoon.



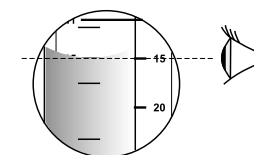
- 6- Wait for 5 minutes to allow reaction to complete. If Potassium is present, the solution will become turbid.



- 7- Place the test tube on the Point card and look from the top of the tube at the black spot on the Point card. Use the long pipette to fill the tube with the reacted sample until the black spot completely disappears.



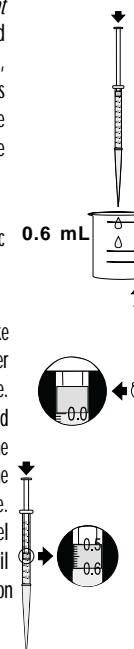
- 8- Hold the tube close to the Graduated card as shown in the figure.
- 9- Read directly from the Graduated card the concentration in mg/L (ppm) of potassium that corresponds to the level of the liquid in the test tube.



- 10- In case the black spot on the Point card disappears when the liquid level is under the 50 ppm mark, the potassium concentration is higher than 50 ppm. Dilute the original sample and perform the test as follows.

- 11- Using the syringe, add to the plastic vessel 0.6 mL of soil extract.

Note: To measure exactly 0.6 mL, take the syringe and push the plunger completely down into the syringe. Insert tip into the extract and pull the plunger out until the lower edge of the seal is on the 0.0 mL mark of the syringe. Insert the syringe into the vessel and push the sample out until the lower edge of the seal is on the 0.6 mL mark.



12- Add demineralized water up to the 25 mL mark.



13- Follow the instructions from step 3 to step 8.



14- Read from the *Graduated card* the value corresponding to the level of the liquid in the test tube and multiply it by 5 to obtain the concentration in mg/L (ppm) of potassium.

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

POTASSIUM CONVERSION TABLE

mg/L	lbs/A	Kg/A	meq/100g
10	20	22	0.026
15	30	33	0.038
20	40	45	0.051
25	50	56	0.064
30	60	67	0.076
35	70	78	0.090
40	80	89	0.100
45	90	100	0.120
50	100	112	0.130
75	150	167	0.190
100	200	223	0.260
125	250	279	0.320
150	300	334	0.380
175	350	390	0.450
200	400	446	0.510
225	450	502	0.580
250	500	558	0.640

Note: meq/100 g is milliequivalent per 100 grams.

REFERENCES

Adaptation of the Turbidimetric Tetraphenylborate Method.

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.