



PLANT TISSUE KIT

NITRATE, PHOSPHORUS, POTASSIUM

SPOT PLATE
CODE 5026-01

QUANTITY	CONTENTS	CODE
2 x 120 mL	*Universal Extracting Solution, Concentrated	*5227-J
30 mL	*Nitrate Reagent #1	*5146-G
30 g	*Nitrate Reagent #2 Powder	*5147-G
30 mL	*Phosphorus Reagent #2	*5156-G
50	Phosphorus Test Tablets	5706A-H
50	*Potassium B Tablets	*5161A-H
120 mL	*Potassium Reagent C	*5162-J
1	Funnel, plastic	0459
1	Filter Papers, (100 sheets)	0465
1	Test Tube, w/cap, "Potash A"	0245
1	Test Tube, "Phosphorus B"	0244
2	Test Tubes, extraction, w/caps, 7 & 14 mL	0704
1	Spot Plate, plastic	0159
1	Spoon, 0.5 g	0698
1	Stirring Rod, plastic	0519
2	Pipets, 1.0 mL, plastic	0354
1	Pipet, transfer, plastic	0364
1	Pipet, plain, glass, w/cap	0341
1	Pipet, plastic, w/cap	0392
1	<i>LaMotte Soil Handbook</i>	1504

Warning! This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

*WARNING: Reagents marked with an * are considered to be potential health hazards. To view or print a Safety Data Sheet (SDS) for these reagents go to www.lamotte.com. Search on the four digit reagent code number listed on the reagent label, in the contents list and in the test procedures. Omit any letter that follows or precedes the four digit code number. For example if code is 4450WT-H, search on 4450. To obtain a printed copy, contact LaMotte by e-mail, phone or fax.

Emergency information for all LaMotte reagents is available from Chem-Tel: (US, 1-800-255-3924) (International, call collect, 813-248-0585).

To order individual reagents or test kit components, use the specified code number.

Distilled water should be used in the extraction procedure. Natural waters may be used only if they are free of nitrates (i.e., a nitrate test is performed on the water sample blank gives no result). Phosphorus and potassium, if present, are usually present in trace amounts only.

COLLECTION & PREPARATION OF PLANT TISSUE SAMPLES

Fresh plant material should be obtained from the growing crop, both from normal and problem plants. It is important to test both healthy and problem plants, as the tests are most meaningful when used in a comparative manner. Select small lots of the leaf petioles, or succulent portion of the stem, in the part of the plant most affected by any observable abnormal symptoms. Using a clean, sharp knife or razor blade, cut the material into fine bits of not more than $\frac{1}{8}$ to $\frac{1}{16}$ inch in length and thickness. An amount of material is used that will fill the Extraction Tube (0704) to the bottom mark when placed in the tube without packing.

EXTRACTION PROCEDURE

1. Fill the Extraction Tube (0704) to the lower line with the plant tissue to be tested.
2. Use a 1 mL pipet (0354) to add 2 mL of *Universal Extracting Solution, Concentrated (5227).
3. Fill the tube to the upper line with distilled or Nitrate-free water.
4. Cap and shake vigorously for 5 minutes.
5. Use a sheet of filter paper (0465) and the funnel (0459) to filter the tissue extract into a clean Extraction Tube.

NITRATE NITROGEN TEST

1. Use a clean 1 mL pipet (0354) to transfer 1 mL of the filtered tissue extract to one of the larger depressions on the spot plate (0159).
2. Use the plastic pipet with screw cap (0392) to add 10 drops of *Nitrate Reagent #1 (5146) to the filtrate in the spot plate.
3. Use the 0.5 g spoon (0698) to add 0.5 g of *Nitrate Reagent #2 Powder (5147). Stir thoroughly with a Stirring Rod (0519).
4. Allow to stand 5 minutes for full color development. Then observe the color. Compare resulting color from the healthy plant test with the problem plant test.

Results:

Dark Pink Color	Abundant nitrate
Light Pink Color	Adequate nitrate
No color	No nitrate reserve, probably deficient

PHOSPHORUS TEST

1. Fill the “Phosphorus B” Tube (0244) to the line with the filtered tissue extract.
2. Use the glass pipet with screw cap (0341) to add 6 drops of *Phosphorus Reagent #2 (5156) to the tube containing the filtrate.
3. Add one Phosphorus Test Tablet (5706A). Cap and shake until tablet dissolves.
4. Immediately note the color. Compare the color development from healthy and problem plants.

Results:

Deep Blue Color	Abundant phosphorus
Light Blue Color	Adequate phosphorus
Yellow to Colorless	Deficient to Extremely Deficient phosphorus

POTASSIUM [POTASH] TEST

1. Fill the “Potash A” Tube (0245) to the lower line with the filtered tissue extract.
2. Add one *Potassium B Tablet (5161A). Cap and shake until tablet dissolves.
3. Use the transfer pipet (0364) to add *Potassium Reagent C (5162) until the tube is filled to the upper line. Allow the *Potassium Reagent C to run slowly down the side of the tube. Swirl tube gently to mix.
4. A precipitate indicates the presence of potassium. The heavier the precipitate, the more potassium is present. Compare formation of precipitate in healthy plant tests and problem plant tests.

Results:

Heavy Precipitate	Adequate to Abundant potassium (potash)
Medium Precipitate	Possible potassium deficiency
Trace Precipitate	Deficient potassium
No Precipitate	Extremely Deficient potassium

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