LaMotte®

SOIL TESTING PRODUCTS

GARDEN & EDUCATION OUTFITS

Best Seller!

Code 5679-02

Garden Guide Soil Test Kit

EL · Code 5679-02 · LQ (4)

Reagent Refill · Code R-5679 · LQ (4)

A simple test kit for soil science education or garden analysis. Rapid test procedures, diagramed instructions and laminated color charts are used to measure concentrations of nitrogen, phosphorus, potassium (15 tests each) and soil pH (30 tests). The Study of Soil Science handbook, LaMotte Soil Handbook and Garden Guide Manual are included to interpret test results and give lime and fertilizer recommendations.

Educational Test Kits

Kits are supplied with unit dose TesTabs® to run 50 repetitions of each test factor. Simple diagrammed instructions, hardware and laminated color chart included.

Soil NPK Kit · Code 3-5880 · NH (1)

Features:

- Tests for nitrogen, phosphorus and potassium
- Results reported as Low, Medium and High

Soil pH Kit · Code 5912 · NH (1)

Features:

- Tests for pH in the range of 4.0-11.0 in 1.0 pH units

Code 3-5880

pH

ST-M · Code 5023-01 · R2 (3) | ST-T · Code 5024 · R1 (1)

The pH value affects all mineral elements and the biological processes made available to plants from the soil. Accurate pH testing is essential to determine lime requirements and to insure that a mineral-rich soil is also a fertile one.

Code/Model	Method	Range & Sensitivity	Reagent System	# of Tests
5023-01/ ST-M	5 Color Charts & Spot plate Morgan Method	pH 3.8-8.4 in 0.2 increments (not for heavy clays)	5 individual pH indicators	50
5024/ST-T	Color Chart & Spot Plate	pH 4.0, 5.0, 6.0, 7.0, 8.0	Duplex Indicator	100

Code 5023-01

Plant Tissue Testing

Plant tissue testing provides essential information concerning plant use of nutrients vital to their growth. These simplified field tests for green plant tissue indicate whether growing plants are receiving adequate amounts of available nutrients from the soil. All tests give qualitative results for the specific nutrients. By comparing test results from healthy and problem plants, it is possible to pinpoint deficiencies or excessive nutrient conditions.

Macronutrient Plant Tissue Kit

PT-3R · Code 5026-01 · LQ (3) Reagent Refill · Code R-5026 · LQ (2)

A complete kit for determining nitrates, phosphorus and potassium in plant tissue. Diced green plant tissue is saturated in a Universal Extracting Solution to prepare a single liquid extract for use with all three tests. **Qualitative results given as abundant, adequate, deficient only.** Reagents for 50 tests per factor.

Code 5026-01

Code 1067

Soil Texture Kit

Order Code 1067 | NH (2) | Reagent Refill R-1067 | NH (1)

The overall texture of a soil affects growth in the root zone, which determines the above-ground growth production. Soil Texture is determined by the fractions of sand, silt, and clay present. 50 tests.

- FREE online resource: *A Study of Soil Science*

SAMPLING EQUIPMENT

Basic Soil Sampler

EP · Code 1055 · NH (2)

The galvanized steel sampler has a saw-toothed cutting edge tapered for easy core removal. The cutaway side of the tube permits inspection of soil core. The Model EP takes a one-inch core sample to a depth of 10 inches (25 cm) and is furnished with 20 LaMotte Soil Sampling Bags.

Spot Plate

Plastic, Two-Well
Code 0159 · NH (1)

White plastic. Two wells. 24mm x 8mm deep. Draining channels 8mm wide x 3mm deep run to smaller wells 10mm diameter x 4mm deep. Plate is 85mm x 75mm.

Soil Sampling Bags

Package of 100 Code 0615-J · NH (2)

These 6 x 4 inch (15 x 10 cm) plastic zip-lock bags have instructions for collection and preparation of soil samples printed directly on each bag. By preventing contamination or accidental mixing of different samples, these convenient soil bags help insure accurate test results.

HYDROPONICS OUTFITS

Hydroponic culture is the growing of plants in a controlled environment with nutrient solutions, but without the use of soil as the supporting medium. Plant roots are fed directly, which is in contrast to conventional growing methods where plant food is applied to the soil and the roots extract the nutrients from the soil. Plants are either grown directly in nutrient solutions with only structural support or in beds through which nutrient solutions are periodically recirculated. Unlike field crops, hydroponically grown plants can be grown at great densities and with less concern about diseases initiated in soils or by insects and weeds. Hydroponics has played a significant role in modern plant nutrition research. Scientists are able to isolate the effects of essential minerals on various stages of plant growth and to study the effects of single element deficiencies under controlled conditions.

See back page for Shipping Codes & Weights chart.

Code 3561-01

Hydroponics 4-In-1 Test Kit

HP-1 · Code 3561-01 · LQ (7) Reagent Refill · Code R-3561 · LQ (2)

Model HP-1 offers tests for pH and three key nutrient factors: nitrogen, phosphorus and potassium. It allows the hydroponic hobbyist to maintain proper nutrient balance and to achieve optimum growing conditions in soil-less cultures. Reagents sufficient for 50 tests per factor and complete labware are foam-mounted in a sturdy carrying case. Instructions and 75-page Hydroponics Handbook are supplied.

Octa-Slide 2 Comparator Tests	
pH	pH 4.5-8.0
Nitrate Nitrogen	5-200 ppm*
Phosphorus	3-30 ppm

* By dilution

Direct Reading Turbidity Tube	
Potassium	0-250 ppm

pH Hydroponics Test Kit

HPH · Code 5074-01 · R1 (1) Reagent Refill · Order 5132-G · R1 (1)

Simply add pH indicator reagent to the sample solution in a test tube for a color reaction. The resulting color is read in an Octa-Slide 2 Comparator with permanent color standards for pH values of 4.8, 5.2, 5.6, 6.0, 6.4, 6.8, 7.2 and 7.6. The kit has sufficient reagent for 50 tests and is packaged in a sturdy, hinged box.

Code 5074-01

ELECTRONIC LABS

SCL-12 · Code 1985-06 · LQ (37) | Reagent Refill · Code R-1985-04 · LQ
SCL-15 w/out pH & Dissolved Salts Meters · Code 1988-03 · LQ (33)

See back page for Shipping Codes & Weights chart.

- Self-contained, electronic soil analysis laboratory
- 15 soil factors, including available forms of macronutrients and micronutrients.
- SMART® 3 Colorimeter instantly analyzes color reactions developed in nutrient tests.
- Display readings converted to results in ppm or lb/acre.
- All tests are performed in minutes, based on **Mehlich I extraction**.
- Critical soil pH measurements are performed quickly with a pH Tracer.
- Range of 0-14 pH units to a sensitivity of ±0.01 pH.
- Soluble Salt levels are monitored with a TDS Tracer, measuring Dissolved Salts from 0-999+ ppm.

Code 1985-06

See back cover for free resources!

Direct Reading Titrator Tests:	Range*	# Tests
Calcium	0-4000 lb/acre	50
Magnesium	0-2400 lb/acre	50
Chloride	0-1000 lb/acre	50

Battery-Powered Meters:	Range*
pH Tracer	pH 0-14
TDS Tracer	0-10.00, 100.0, 1,000 ppm; 1.00-10.00, 100, 200 ppt

Colorimeter Tests	Method	Range*	# Tests
Nitrate Nitrogen	Cadmium Reduction	0-300 lb/acre	20
Nitrite Nitrogen	Diazotization	0-40 lb/acre	20
Ammonia Nitrogen	Nesslerization	0-200 lb/acre	50
Phosphorus	Ascorbic Acid Reduction	0-99 lb/acre	50
Potassium	Tetraphenylboron	0-500 lb/acre	100
Sulfur	Barium Chloride	3-94 ppm	50
Copper	Diethyldithiocarbamate	0-30 ppm	100
Iron	Bipyridyl	0-30 ppm	50
Manganese	Periodate	0-75 ppm	50
Zinc	Zincon	0-15 ppm	50

* See table at right for unit conversion factors

Unit Conversion Factors:

Results can be measured using a choice of units, explained here. Parts per million (ppm), pounds/acre and Kg/hectare units can be converted to each other using these values:

Area	Soil Depth	Soil Weight
1 acre	6-7 inches	2 million lb
1 hectare	15-18 cm	2.25 million Kg

ppm	lb/acre	Kg/hectare
0.5	1	1.12
1	2	2.24
0.89	1.78	1

A number of variables must be considered when interpreting soil test results in addition to the values obtained. These variables include the composition of the soil, drainage, climate, previous fertilizer programs and the type of plant to be grown. Samples must also be truly representative of the area being studied and must be carefully selected.

All of the LaMotte soil test kits measure the portion of the soil nutrient that is available for the plant to use. Pounds per acre represent the number of pounds of soil in an acre to the plow depth of 6-7 inches, or 2,000,000 lbs.

AGRICULTURAL COMBINATION SOIL OUTFITS

Code 5010-01

See back cover for free resources!

See back page for Shipping Codes & Weights chart.

Model STH Series

Macronutrients, pH, & Humus

Model STH-5 · Code 5061 · LQ (12) | Reagent Refill · Code R-5061 · LQ (6)

Macronutrients, Micronutrients, & pH

Model STH-14 · Code 5010-01 · LQ (20) | Reagent Refill · Code R-5010-01 · LQ (10)

- **Based on Morgan Test methods**.
- Tests for calcium, sulfate and chlorides are based on turbidity measurements.
- Soil pH is determined colorimetrically, using pH indicators and color charts
- Range of pH 3.8 to 9.6.
- STH outfits also include simplified procedures for screening nitrates, phosphorus and potassium in plant tissues.
- Kits includes instructions, a soil management handbook and a pad of soil analysis report forms.
- Lightweight carrying case with components securely mounted in removable trays.
- The ***LaMotte Soil Handbook*** contains general information on interpretation of test results for determination of lime and fertilizer requirements.

STH-7 · CODE 5061

Test Factor	Tests	Range*
pH	100	pH 3.8-9.6
Nitrate Nitrogen	50	10-150 lbs/acre
Phosphorus†	50	10-200 lbs/acre
Potassium	50	100-400 lbs/acre
Humus (Organic Matter)	50	L-H 1½%-8%
Calcium	50	150-2800 ppm
Magnesium	50	L-H 5-150 ppm

STH-14 · CODE 5010-01

Test Factor	Tests	Range*
pH	100	pH 3.8-9.6
Nitrate Nitrogen	50	10-150 lbs/acre
Phosphorus†	50	10-200 lbs/acre
Potassium	50	100-400 lbs/acre
Humus (Organic Matter)	50	L-H 1½%-8%
Calcium	50	150-2800 ppm
Magnesium	50	L-H 5-150 ppm
Ammonia Nitrogen	50	L-H 5-150 ppm
Manganese	50	L-H 4-40 ppm
Aluminum	50	L-H 5-125 ppm
Nitrite Nitrogen	50	1-50 ppm
Sulfate	50	50-2000 ppm
Chloride	50	25-500 ppm
Ferric Iron	50	5-125 lbs/acre

* See table below for unit conversion factors

† For non-alkaline soils. Code 5090 Phosphorus Auxiliary package recommended for alkaline soils.

Unit Conversion Factors:

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1 acre	6-7 inches	2 million lb
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ppm	lb/acre	Kg/hectare
0.5	1	1.12
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0.89	1.78	1

A number of variables must be considered when interpreting soil test results in addition to the values obtained. These variables include the composition of the soil, drainage, climate, previous fertilizer programs and the type of plant to be grown. Samples must also be truly representative of the area being studied and must be carefully selected.

Tracer Pocketesters & ACCESSORIES

Dissolved Salts

High levels of soluble salts in the soil can be caused by excessive fertilization, insufficient watering, poor drainage, or by some contributing salt water intrusion. High concentrations of soluble salts can inhibit plant growth and will reduce overall crop yields. Greenhouse plants and other sensitive crops may be damaged if soluble salts exceed 2000 ppm. Soluble Salts, or Total Dissolved Salts, are measured by means of a Conductivity Meter. A conductivity reading measures the capacity of a solution to conduct an electric current and is directly related to the total ionic concentration of dissolved substances in the solution. Thus, the conductivity reading of a soil extract can be converted into a reading of Total Dissolved Salts to indicate combined levels of sulfates, chlorides and other salts in the soil. Extract is prepared using deionized water, not included with meters.

Sample Cup

SALT/EC/TDS Tracer

Code 1749 · NH (1)

- Easy to use
- 2% accuracy for EC, TDS and Salt modules
- Automatic temperature compensation
- Self calibration
- Memory can store up to 15 readings
- Automatic shut-off and low battery indicator; uses four 3V CR-2032 button batteries
- Auto Off after 10 minutes

Options:

- EC/TDS/SALT Replacement Electrode · Code 1765
- Weighted Stand w/Sample Cups (5) · Code 1746
- Sample Cups w/caps (24) · Code 1745
- Conductivity Standard, 84 µS · Code 6312
- Conductivity Standard, 1413 µS · Code 6354
- Conductivity Standard, 12,880 µS · Code 6317

	Range
Conductivity:	0 to 199.9 µS, 200 to 1999 µS, 2.00 to 19.99 mS
TDS:	0 to 99.9 ppm (mg/L), 100 to 999 ppm (mg/L), 1.00 to 9.99 ppt (g/L)
Salinity:	0 to 99.9 ppm, 100 to 999 ppm, 100 to 9,900 ppm
Accuracy:	EC, TDS, Salt: ± 2% FS; Temperature: ± 1°C (1.8°F)
Temperature	±1.8°F/°C

Weighted Stand

Conductivity/TDS Solutions

The following potassium chloride solutions can be used to standardize conductivity meters. TDS values are based on a 0.7 conversion from conductivity. Available in 30 mL and 500 mL sizes.

Description	Code
Conductivity Standard, 84 µS/cm	6312
Conductivity Standard, 1,413 µS/cm	6354
Conductivity Standard, 12,880 µS/cm	6317

Tracer Pocketesters & ACCESSORIES

pH

Soil pH is a measure of the relative acidity or basicity of a given soil. The pH scale (0-14) is a logarithmic expression of hydrogen ion activity. A pH of 7.0 is neutral, and soils above or below this value are either alkaline or acidic, respectively. A soil with a pH of 6.0 is ten times more acidic than a soil of pH 7.0. Changes in soil pH dramatically affect the availability of nutrients to growing crops. The pH meter is the preferred method for determination of soil pH and the only one adaptable to the buffer methods for determining the lime requirement of a soil. pH is measured by mixing a 1:1 ratio of soil and distilled water. Distilled water not included with meters.

Code 1741

Code 1766

See back page for Shipping Codes & Weights chart.

pH Tracer

Code 1741 · NH (1)

Tracer provided with 4, 7 and 10 pH buffer tablets.

- Range: 0.00 to 14.00 pH/0.01 pH
- Temp: 23° to 194°F (–5° to 90° C)
- Resolution: 0.01 pH
- Rugged flat surface electrode will alert user when it's time to "RENEW"
- A "CAL" indicator shows when to recalibrate and user can select a 1, 2, or 3 point calibration
- Includes Automatic Temperature Compensation and displays temperature while showing pH result
- Auto-off after 10 minutes
- Power: Four 3VCR-2032 batteries

Optional interchangeable probes:

- Total Chlorine* Probe · Code 1732
- ORP Probe · Code 1734
- Replacement pH Probe · Code 1733

*Requires Total Chlorine Tablets · Code 7044A-J

pH/TDS/SALT Tracer

Code 1766 · NH (1):

- Measures five parameters including Conductivity, TDS, Salinity, pH and Temperature using one electrode
- Units of measure: pH, µS, mS, ppm, ppt, mg/L, °C, °F
- Memory stores up to 25 labeled readings
- Adjustable Conductivity to TDS ratio
- Auto power off and low battery indicator

Options:

- pH/TDS/SALT Replacement Electrode for 1766 only · Code 1755
- Weighted Stand w/Sample Cups (5) · Code 1746
- Sample Cups w/caps (24) · Code 1745

	Range	Resolution	Accuracy
Conductivity	0 to 199.9 µS, 200 to 1999 µS, 2.00 to 19.99 mS	0.1 µS	±1%
TDS/Salinity	0 to 99.9 ppm (mg/L), 100 to 999 ppm (mg/L), 1.00 to 9.99 ppt	0.1 ppm (mg/L)	±2%
pH	0.00 to 14.00 pH	0.01 pH	±0.01 pH
Temperature	32° to 149°F (0 to 65°C)	0.1°F/°C	±1.8°F/°C

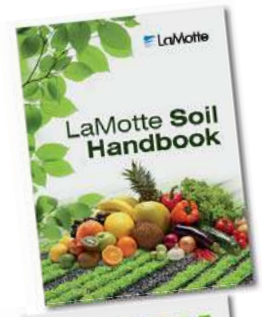
pH Buffer Solutions

Standardized pH Buffer Solutions are for use in calibration of pH meters. Liquid buffers available in 120 mL and 500 mL sizes. Tablet buffers available in 50 and 100 pack boxes.

pH Value†	Code
pH 4.01 Liquid Buffer	2866
pH 7.00 Liquid Buffer	2881
pH 10.00 Liquid Buffer	2896
pH 4.0 Mini Buffer Tablets	3983A
pH 7.0 Mini Buffer Tablets	3984A
pH 10.0 Mini Buffer Tablets	3985A

† Other pH values available.

Handbooks & Catalogs

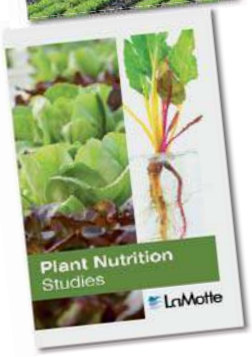


LaMotte Soil Handbook

Order Code 1504

Staff, LaMotte Company

This 60-page "growers' manual" discusses major and minor nutrients, trace elements, soil pH, organic matter, soil texture, etc. Includes lime and fertilizer recommendations for a variety of crops and plants, and pH preferences for over 700 plants.

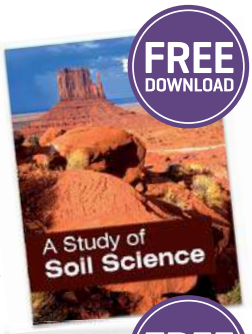


Plant Nutrition Studies

Order Code 1596

Dr. Robert Stegner

This 76-page manual covers the study and practice of hydroponics: plant culture in soil-less nutrient solutions. Includes a series of laboratory procedures and open-ended investigations.



A Study of Soil Science

Dr. Henry D. Foth

An introduction to soil formation, soil pH, mineral elements, plant nutrition, the life cycle of growing plants, and soil fertility management. A Study of Soil Science can be viewed and downloaded for FREE as a PDF file at lamotte.com.

Testing Hints for Improving Soil Sampling Accuracy

Dr. A. R. Halvorson

LaMotte Company gratefully acknowledges Dr. Halvorson's cooperation in this important contribution to the better understanding of the nature of soils. Testing Hints for Improving SOIL SAMPLING ACCURACY can be viewed and downloaded for FREE as a PDF file at lamotte.com.

OTHER LAMOTTE CATALOGS

Aquaculture Testing Products

Order Code 1612

Test kits and instrumentation designed for the fish farm, hatcheries, and research institutions. Equipment designed for monitoring water quality conditions on-site and for benchtop locations. Test equipment also featured for the aquarium hobbyist, the retailer, and the ornamental culturist.

Water Quality Testing Products

Order Code 1653

A complete guide to instruments, apparatus, kits, and reagents. This catalog features the best available test equipment for testing a variety of waters. LaMotte individual and combination kits, and instrumentation are featured.

Environmental Science Products

Order Code 1590

"Hands-on" test equipment for air, soil, and water chemistry students in elementary, secondary, vocational, outdoor, and college science programs.

Food & Beverage Safety Products

Order Code 1658

Contains information on test strips, kits and instruments for the Food and Beverage Industry. Products focusing on safety and sanitation.

Shipping Codes & Weights

The shipping code in the product description will refer to one of the following in this chart. Weight will be in pounds and enclosed in [ ]

CODE	DESCRIPTION
NH	Non-Hazardous Material, No Fees
HF	Hazardous Material, Air & Ground Fees
R1	Small Qty. Hazardous Material, No Fees
R2, R3, LQ	Hazardous Material, Air Fees Only

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