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INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

LY/T 1232-2015

Replacing LY/T 1232-1999; LY/T 1233-1999

Phosphorus determination methods of forest soils

森林土壤磷的测定

(English Translation)

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Preview: page 1 of 5 shown, 14 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/ly-t-1232-2015

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Table of Contents

Foreword
Introduction
1 Scope
2 Normative references
3 Determination of total phosphorus
3.1 Alkali melting method

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces LY/T 1232-1999 "Determination of Total Phosphorus in Forest Soils" and LY/T 1233-1999 "Measurement of Available Phosphorus in Forest Soils" set".

The main changes in this standard compared with LY/T 1232-1999 and LY/T 1233-1999 are as follows.

--- Added normative references;

--- Increased effective phosphorus determination by inductively coupled plasma optical emission spectrometry;

--- Increase the effective phosphorus by the continuous flow analyzer method;

--- Total phosphorus to be tested to prepare a method for increasing nitric acid-perchloric acid-hydrofluoric acid digestion;

--- The acid-soluble method is mainly used to replace the thermostat electric furnace and the Kjeldahl flask by an automatic temperature control digestion system and a matching digestive tube.

This standard is proposed and managed by the State Forestry Administration.

This standard was drafted. Forestry Research Institute of Chinese Academy of Forestry.

Introduction

The preparation of the test solution for the determination of total phosphorus in forest soil is generally divided into two types. alkali fusion method and acid dissolution method. Alkali fusion method with sodium carbonate melting or hydrating Sodium is melted in two ways. Sodium carbonate has the most complete melt decomposition and high accuracy. It can be

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used as an arbitration method, but platinum is required for melting.

This is not suitable for routine analysis. The sodium hydroxide melting method can replace the platinum ruthenium with silver ruthenium, and the decomposition is also complete. The prepared liquid to be tested can be used.

Simultaneous determination of total phosphorus and total potassium is convenient to operate and can be used in general laboratories. In the acid solution method, the sulfuric acid-perchloric acid method is preferred, and the method is calcium.

The decomposition rate of the soil is higher, but the decomposition of the acidic soil is not very complete, and the result is often low. Acid-soluble method can also use nitric acid-hydrofluoric acid-high by the chloric acid method, the prepared test solution can simultaneously measure various elements.

Determination of available phosphorus in forest soil, using hydrochloric acid-sulfuric acid extraction method for acid soil with light texture, moderate acidity to weathering degree the soil is extracted by ammonium fluoride-hydrochloric acid, sodium bicarbonate extraction method is used for neutral and calcareous soil, and different extraction methods are used for the same soil.

The measured effective phosphorus content differs a lot, that is, using the same extractant, the extraction conditions such as soil-liquid ratio, temperature, time, oscillation method and strength Sub-, will also have a great impact on the results, so effective phosphorus is only a relative indicator, only the same method measured under the same conditions If there is a comparative significance.

The determination of available phosphorus in the liquid to be tested can be carried out by colorimetry, continuous flow analyzer method and inductively coupled plasma optical emission spectroscopy. Traditional when the colorimetric method is used to determine the phosphorus consumption, the reagent consumption is large, the test cost is high, and the dilution of the sample during the operation and the artificial elimination of air bubbles increase the measurement knot.

Fruit error. Determination of phosphorus in soil by continuous flow analyzer and inductively coupled plasma optical emission spectroscopy, making complex manual the operation is simplified into automatic operation of the instrument, which not only analyzes fast, reduces reagent consumption, but also has high accuracy, less environmental pollution, and reduces people.

For the error.

Determination of phosphorus in forest soil

Preview: page 3 of 5 shown, 14 in the full document. Complete English PDF, instant download:
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1 Scope

This standard specifies the method for determination of phosphorus in forest soil, using alkali fusion method and acid dissolution method to determine total phosphorus in forest soil, hydrochloric acid-sulfuric acid, fluorination Extraction of ammonium-hydrochloric acid and sodium bicarbonate, determination of forest soil by colorimetric method, continuous flow analyzer method and inductively coupled plasma optical emission spectrometry Phosphorus.

This standard applies to the determination of total phosphorus and available phosphorus in forest soils.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Preparation of GB/T 601 chemical reagent standard titration solution Preparation of preparations and products used in GB/T 603 test method GB/T 6682 Analytical laboratory water specifications and test methods LY/T 1210-1999 Collection and preparation of forest soil samples LY/T 1239-1999 Determination of pH value of forest soil

3.1.1 Method points

After the sample is melted and decomposed by strong alkali, all the phosphorus-containing minerals and organic phosphorus compounds are converted into soluble orthophosphate, under acidic conditions.

The reaction with molybdenum anti-chromogen reacts to form phosphorus molybdenum blue, and the phosphorus content is determined by colorimetry.

3.1.2 Reagents

All reagents were of analytical grade except as noted. Analytical water should meet the specifications of the secondary water in GB/T 6682. Required in the test Standard titration solutions, preparations and products are prepared in accordance with GB/T 601 and GB/T 603 when no other requirements are indicated.

3.1.2.1 Sodium hydroxide

NaOH.

Preview: page 4 of 5 shown, 14 in the full document. Complete English PDF, instant download:
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3.1.2.2 Absolute ethanol

C2H5OH.

3.1.2.3 Sulfuric acid

H2SO4, rho = 1.84 g/mL.

Preview: page 5 of 5 shown, 14 in the full document. Complete English PDF, instant download:
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