

## Soil Inorganic Phosphorus (S-PHOS) Content Assay Kit

**Note:** Take two or three different samples for prediction before test.

**Operation Equipment:** Spectrophotometer

**Cat No:** AK0372

**Size:** 50T/48S

### Components:

Reagent I: Liquid 50 mL×1 bottle, store at 4°C . Dilute 10 times with distilled water before use.

Reagent II: Liquid 11 mL×1 bottle, store at 4°C .

Reagent III: Powder×1 bottle, store at 4°C and protected from light. Add 20 mL of distilled water and 10 mL of Reagent II before use, mix thoroughly.

Standard: Liquid 1 mL×1 tube, 40 µg/mL inorganic phosphorus standard solution, store at 4°C .

### Product Description:

Phosphorus is an essential element in plants. Plants absorb phosphorus from the soil through root. Soil phosphorus includes organic and inorganic phosphorus. Soil organic phosphorus can be further absorbed and utilized by plants only if it is mineralized and decomposed into inorganic phosphorus.

In acid environment the content of inorganic phosphorus was calculated by molybdenum blue method.

### Required reagents and equipments:

Spectrophotometer, centrifuge, water bath, scale, transferpette, 1mL glass cuvette, distilled water and 100 meshes sieve.

### Procedure:

#### I . Sample preparation:

Take 0. 1g of air-dried soil sample after 100 meshes sieve to the 10mL centrifuge tube, add 10mL of reagent I. Shake and mix thoroughly, then incubate at 40°C water bath for 1 h, centrifuge at 8000rpm and room temperature for 10 min, take supernatant to be tested.

#### II . Determination

1. Preheat spectrophotometer for 30 min, adjust wavelength to 660 nm, set zero with distilled water.
2. Adjust the temperature of water bath to 40°C .
3. Blank tube: Add 500µL of distilled water and 500µL of Reagent III to a centrifuge tube, incubate at 40°C water bath for 10min after mix thoroughly. Detect the absorbance of 660 nm after cooling for 10 min, record  $A_B$  .
4. Standard tube: Add 50µL of standard, 450µL of distilled water and 500µL of Reagent III to a centrifuge tube, incubate at 40°C water bath for 10min after mix thoroughly. Detect the absorbance of 660 nm after cooling for 10 min, record  $A_S$  .
5. Test tube: Add 50µL of supernatant, 450µL of distilled water and 500µL of Reagent III to a centrifuge

tube, incubate at 40°C water bath for 10min after mix thoroughly. Detect the absorbance of 660 nm after cooling for 10 min, record  $A_T$ .

### III. Calculation

$$S\text{-PHOS}(\mu\text{g/g})=[C_S \times (A_T - A_B) \div (A_S - A_B)] \times V_T \div W = 400 \times (A_T - A_B) \div (A_S - A_B) \div W$$

S- $C_S$ : 40 $\mu\text{g/mL}$ ;

$V_R$ : The total volume of supernatant, 10 mL;

W: Soil sample weight, g.

### Note:

1. Reagent III needs to be prepared in advance for day use only. It exists possibly black solid when preparing which won't affect the outcome. Do not inhale the black solid in the course of experiment.
2. If the absorbance value is greater than 1, the sample should be diluted with distilled water.
3. The colorimetry should be completed within 40 minutes.

### Related Products:

AK0173/AK0172	Soil Hydrargyrum(S-Hg) Content Assay Kit
AK0171/AK0170	Soil Phosphorus Content Assay Kit
AK0552/AK0551	Soil Dehydrogenase Activity Assay Kit
AK0512/AK0511	Soil Acid Protease Activity Assay Kit

### Technical Specifications:

The detection limit: 0.5249  $\mu\text{g/mL}$

Linear range: 2-80  $\mu\text{g/mL}$