

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

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

**Operation Equipment:** Spectrophotometer/Microplate reader

**Cat No:** AK0371

**Size:** 100T/96S

### Components:

Reagent I: Liquid 100 mL×1 bottle, store at 4°C .

Reagent II: Liquid 5.5 mL×1 bottle, store at 4°C .

Reagent III: Powder×1 bottle, store at 4°C and protected from light. Add 8 mL of distilled water and 4 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 equipment:

Spectrophotometer/Microplate reader, micro glass cuvette/96 well flat-bottom plate, centrifuge, water bath, scale, transferpette, distilled water and 100 meshes sieve.

### Procedure:

#### I . Sample preparation:

Take 0.01g air-dried soil sample after 100 meshes sieve to the 10 mL centrifuge tube, add 1mL of reagent I. Shake and mix thoroughly, 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 / microplate reader 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 100µL of distilled water and 100µL of Reagent III to 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 10µL of standard, 90µL of distilled water and 100µL of Reagent III to 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 10 $\mu$ L of supernatant, 90 $\mu$ L of distilled water and 100 $\mu$ L of Reagent III to 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  $A_T$ .

**Note:** The test needs to be completed within 40 minutes.

### III. Calculation

$$S\text{-PHOS } (\mu\text{g/g}) = [C_S \times (A_T - A_B) \div (A_S - A_B)] \times V_T \div W = 40 \times (A_T - A_B) \div (A_S - A_B) \div W$$

$C_S$ : 40 $\mu$ g/mL;

$V_R$ : The total volume of supernatant, 1 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 1.5, 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: 0.3932  $\mu$ g/mL

Linear range: 1-400  $\mu$ g/mL