

ICS 67.180.20
CCS X 11



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 22427.11-2008

Replacing GB/T 12092-1989

**Starches and derived products -- Determination of total
phosphorus content**

淀粉及其衍生物磷总含量测定

(English Translation)

Issued on: October 19, 2008

Implemented on: March 1, 2009

Issued by: Standardization Administration of China

Table of Contents

Foreword
1 Scope
2 Terms and definitions
4 Reagents
4.6 Phosphorus standard solution
5 Instruments

Foreword

This standard is identical with ISO 3946. 1982 "total phosphorus content of starch and its derivatives spectrophotometry" (in English), the contents of and structure of ISO 3946. 1982 is consistent, only made editorial changes.

This standard replaces GB/T 12092-1989 "total content of starch and its derivatives phosphorus determination." this standard and GB/T 12092-1989 compared to major changes are as follows.

--- Standard name changed to "total determination of phosphorus content of starch and its derivatives";

--- Improve the standard format, according to the International System of Units standardized units;

--- Added "8 test report." this standard is proposed and managed by China General Chamber of Commerce.

This standard was drafted. Chinese Chamber of Commerce Business Standard centers, food, Jiangnan University, China Starch Industry Association modified starch Professional Committee, Tianjin peak Starch Development Company Limited.

1 Scope

This standard specifies the method for spectrophotometric determination of the total content of starch and its derivatives of phosphorus.

This standard applies to starch and its derivatives sample total phosphorus content of not more than 5% (mass fraction).

2 Terms and definitions

The following terms and definitions apply to this standard.

The measured phosphorus content in accordance with the method specified in this standard.

Principle 3

Sulfuric acid - a mixture of nitric acid digestion and destroy organic matter and phosphate into orthophosphate, by reducing the role of the formation known as Molybdenum blue phosphomolybdate, determined by spectrophotometry at 825nm blue absorbance wavelength.

4 Reagents

Use analytical grade reagents and distilled water or equivalent purity.

4.1

sulfuric acid - a mixed solution of nitric acid. one volume of sulfuric acid [Ba = 96% (mass fraction), $\rho_{20} = 1.84\text{g/mL}$] and a volume of nitric acid (4.2) and mixed.

4.2

nitrate. Ba = 65% (mass fraction), $\rho_{20} = 1.38\text{g/mL}$.

4.3

ascorbic acid solution. Ba = 50g/L, the solution was stored in a refrigerator up to no more than 48h.

4.4

molybdate solution. 10.6g paramolybdate tetrahydrate compound $[(\text{NH}_4)_6 \cdot \text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O}]$ was dissolved in 500mL of water and transferred to 1000mL flask was added 500mL of 10mol/L sulfuric acid solution in the mixing and cooled to room temperature.

4.5

Sodium hydroxide solution. Ba = 10mol/L.

4.6 Phosphorus standard solution

4.6.1

Standard stock solution. Weigh anhydrous potassium dihydrogen phosphate 0.4393g (accurate to 0.5mg), dissolved in water, and then quantitatively transferred to 1000mL Flask with water to volume, mix, 1mL standard stock solution containing 100 μg of phosphorus.

Note: Before using potassium dihydrogen phosphate shall, electric oven drying 1h (oven

temperature controlled at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$), cooled to a desiccator Room temperature.

4.6.2

standard solution. Pipette 10mL with stock standard solution (4.6.1) into 250mL volumetric flask, water to the moment Degree and shaken. 1mL standard solution containing $4\mu\text{g}$ phosphorus.

5 Instruments

5.1

flask. 50mL, 100mL, 200mL, 250mL and 500mL.

5.2

conical flask. 50mL.

5.3

digest bottle. 100mL.

5.4

Pipette. 1mL, 2mL, 5mL, 10mL, 15mL and 25mL.

5.5

cold water bath. the temperature can be controlled between $15\text{ }^{\circ}\text{C} \sim 25\text{ }^{\circ}\text{C}$.

5.6

boiling water bath.

GB/T 22427.11-2008/ISO 3946. 1982