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NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

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GB/T 8572-2010

Replacing GB/T 8572-2001

Determination of total nitrogen content for compound fertilizers titrimetric method after distillation

复混肥料中总氮含量的测定 蒸馏后滴定法

(ISO 5315:1984, MOD)

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Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China;

Standardization Administration of the People's Republic of China.

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Foreword

This Standard is one of the series of standards for compound fertilizers test methods. These series of national standards are listed below:

- GB/T 8571-2008 “Preparation of laboratory samples for compound fertilizers”;
- GB/T 8572-2010 “Determination of total nitrogen content for compound fertilizers titrimetric method after distillation”;
- GB/T 8573-2010 “Determination of available phosphorus content for compound fertilizers”;
- GB/T 8574-2010 “Determination of potassium content for compound fertilizers potassium tetraphenylborate gravimetric method”;
- GB/T 8576-2010 “Determination of free water for compound fertilizers - Vacuum oven method”;
- GB/T 8577-2010 “Determination of free water for compound fertilizers - Karl Fischer method”;
- GB/T 24890-2010 “Determination of chloride content for compound fertilizers”;
- GB/T 24891-2010 “Determination of particle size for compound fertilizers”.

This Standard modifies and adopts the International standard ISO 5315:1984 “Fertilizers - Determination of total nitrogen content - Titrimetric method after distillation”.

Main differences between this Standard and ISO 5315:1984 are:

- In the absence of amide nitrogen, the reduction method for nitric acid nitrogen is modified from chromium powder to nitrogen alloy;
- The standard titration concentration of sodium hydroxide is modified from 0.1 mol/L to 0.5 mol/L.

This Standard replaces GB/T 8572-2001 “Determination of total nitrogen content for compound fertilizers titrimetric method after distillation”.

Main difference between this edition and the previous edition is: the standard format is rewritten according to the rules of standardization work.

This Standard is proposed by China Petroleum and Chemical Industry Association.

This Standard is under the jurisdiction of National Technical Committee on Fertilizers

Determination of total nitrogen content for compound fertilizers titrimetric method after distillation

1 Scope

This Standard specifies the determination of total nitrogen content for compound fertilizers.

This Standard does not apply to compound fertilizers with organic compounds greater than 7 % (except urea, cyanamide compounds).

2 Normative references

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. For dated reference, subsequent amendments to (excluding corrections to), or revisions of, any of these publications do not apply. However, the parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards. For undated references, the latest edition of the normative document referred to applies.

GB/T 2441.1 Determination of urea - Part 1：Total nitrogen content

GB/T 8571 Preparation of laboratory samples for compound fertilizers

HG/T 2843 Chemical fertilizer products - Standard volumetric standard reagent and indicator solutions for chemical analysis

3 Principle

In alkaline medium, USE nitrogen alloy to reduce nitric acid nitrogen, and ammonia is directly distilled; or in acidic medium, REDUCE the nitrate into ammonium salt, in the presence of mixed catalyst, DIGEST with concentrated sulfuric acid, CONVERT the organic nitrogen or amide nitrogen and cyanamide nitrogen into ammonium salt, and ammonia is distilled from alkaline solution. ABSORB the ammonia in excess sulfuric acid solution, in the presence of methyl red - methylene blue mixed indicator, USE sodium hydroxide standard titration solution to back titration.

ADD 300 mL of water to the distillation flask; SHAKE to dissolve the specimen; ADD 3 g of nitrogen and explosion-proof matters to the distillation apparatus.

Except that the sodium hydroxide solution (4.8) added is 100 mL and the specimen shall be put aside for 10 min before heating during the distillation process, the rest steps are the same as 6.2.1.2.

6.2.3 Sample containing amide nitrogen, cyanamide nitrogen and ammonium nitrogen

PLACE the distillation flask in the fume hood; carefully ADD 25 mL of sulfuric acid (4.1). PLUG the pear-shaped glass funnel, and PLACE it on the heating device (5.5) to heat until sulfuric acid smoke emits for 15 minutes. After the distillation flask is cooled to room temperature, carefully ADD 250 mL of water.

Except that the sodium hydroxide solution (4.8) added during the distillation process is 100 mL, the rest steps are the same as 6.2.1.2.

6.2.4 Sample containing organic matters, amide nitrogen, cyanamide nitrogen and ammonium nitrogen

PLACE the distillation flask in the fume hood; ADD 22 g of the mixed catalyst, and carefully ADD 30 mL of sulfuric acid (4.1); CONTINUE to heat. PLUG the pear-shaped glass funnel, and PLACE it on the heating device (5.5) to heat.

If there are a lot of bubbles, REDUCE the heating strength until the bubble disappears; CONTINUE to heat until sulfuric acid smoke emits for 60 minutes or until the solution turns to be transparent; after the distillation flask is cooled to room temperature, carefully ADD 250 mL of water.

Except that the sodium hydroxide solution (4.8) added during the distillation process is 120 mL, the rest steps are the same as 6.2.1.2.

6.2.5 Sample containing nitric acid nitrogen, amide nitrogen, cyanamide nitrogen and ammonium nitrogen

ADD 35 mL of water to the distillation flask; SHAKE to dissolve the sample; ADD 1.2 g of chromium powder, 7 mL of hydrochloric acid; PUT it aside for 5 min ~ 10 min; PLUG the pear-shaped glass funnel.

PLACE the distillation flask on a heating device (5.5) in a fume hood; HEAT to boiling and bubbling for 1 min, and COOL to room temperature; carefully ADD 25 mL of sulfuric acid (4.1), CONTINUE to heat until sulfuric acid smoke emits for 15 minutes; after the distillation flask is cooled to room temperature, carefully ADD 400 mL of water.

Except that the sodium hydroxide solution (4.8) added during the distillation process is

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