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

SN/T 0736.15-2013

**Test method of import and export fertilizers. Part 15: Simultaneous
determination of arsenic and mercury content by microwave-assisted
digestion-atomic fluorescence spectrometry**

(English Translation)

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Foreword

SN/T 0736 "Importers fertilizer test methods" is divided into 15 parts.

- Part 1. sampling and sample preparation;
- Part 2. Determination of moisture;
- Part 3. Determination of particle size;
- Part 4. Flame atomic absorption spectrometric method for the determination of sodium content;
- Part 5. Determination of nitrogen content;
- Part 6. Determination of phosphorus;
- Part 7. Determination of potassium content;
- Part 8. Determination of shrinkage diurea content;
- Part 9. Determination of chlorine content;
- Part 10. Determination of the free acid;
- Part 11. automatic analyzer nitrogen content;
- Part 12. Determination of Arsenic, chromium, cadmium, mercury, lead by inductively coupled plasma mass spectrometry;
- Part 13. Flame atomic absorption spectrometric method for the determination of copper, zinc, iron, manganese, magnesium, cobalt, nickel content;
- Part 14. Ion Chromatography Trace inorganic anions;
- Part 15. microwave digestion - atomic fluorescence spectrometry determination of arsenic and mercury content.

This is Part 15 SN/T 0736's.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section proposed and managed by the National Certification and Accreditation Administration Committee.

1 Scope

SN/T 0736 provisions of this part of the fertilizer arsenic and mercury content in microwave digestion - atomic fluorescence spectrometry method for the simultaneous determination.

This section applies to fertilizer arsenic, mercury content is detected, the lowest measurement limit of arsenic was 0.21 μ g/g, the lowest measurement limit of mercury was 0.02 μ g/g.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

Preparation of GB/T 8571 compound fertilizer laboratory samples

3 Method summary

After the sample digestion, hydrochloric acid - nitric acid, mixed media, first with thiourea - ascorbic acid pre-reduction of pentavalent arsenic to trivalent arsenic, however Then with potassium borohydride reducing agent, the sample of arsenic and mercury are reduced to arsine gas and mercury vapor, argon as a carrier gas atomization Vessel, the simultaneous determination of the dual channel atomic fluorescence spectrometer arsenic, mercury atomic fluorescence intensity, analyze the content of arsenic and mercury in the fertilizer.

4 Reagents and materials

Unless otherwise indicated, analytical grade and used only to confirm the above reagent, double distilled water or equivalent purity.

4.1

potassium borohydride.

4.2

sodium hydroxide.

Thiourea 4.3.

4.4

ascorbic acid.

4.5

potassium dichromate.

4.6

nitric acid ($\rho = 1.42\text{g/mL}$).

4.7

hydrochloric acid ($\rho = 1.19\text{g/mL}$).

4.8 50% hydrochloric acid - nitric acid mixture (11). accurate Pipette 100mL of hydrochloric acid (4.7) and 100mL nitric acid (4.6), diluted with water 400mL, brown bottle storage.

4.9

nitric acid (19).

4.10

potassium borohydride solution (20g/L). Weigh 2.5g of sodium hydroxide (4.2), dissolved in water, was added 10.0g potassium borohydride (4.1), plus Diluted with deionized water to 500mL, using now.

4.11

thiourea - ascorbic acid solution (50g/L). Weigh thiourea (4.3), ascorbic acid (4.4) each 10.0g, dissolved in water and diluted to 200mL, using now.

4.12

arsenic standard stock solution (1000 $\mu\text{g/mL}$). traceable to national standard.