

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

SN/T 1325.1-2003

**Determination of mercury content of barites for import and
export. Cold atomic absorption spectrometric method**

进出口重晶石中汞含量的测定 冷原子吸收光谱法

(English Translation)

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Foreword

Appendix A of this section is an informative annex.

This part is proposed and managed by the National Certification and Accreditation Administration.

This section drafted by. Guangxi Entry-Exit Inspection and Quarantine Bureau of the People's Republic of China.

1 Scope

This standard specifies the method for the determination of mercury in imported and exported barite by cold atomic absorption spectrometry.

This standard applies to the determination of mercury content in import and export barite. The range is from 0.00001% to 0.00016%.

2 Normative references

The terms in the following documents become the terms of this standard by reference to this standard. All dated references, followed by all Modifications (not including errata content) or revisions do not apply to this standard, however, parties to agreements based on this standard are encouraged to study if it is possible to use the latest version of these files? For undated references, the latest edition applies to this standard.

GB/T 6682 laboratory water specifications and test methods JJG694 Atomic Absorption Spectrophotometer Calibration Procedure

3 Method summary

The sample was leached with hydrochloric acid-nitric acid, and the ionic mercury was reduced to an atomic state (mercury vapor) with sodium borohydride in a strongly acidic medium. Due to mercury the vapor has a strong absorption effect on the resonance line

with a wavelength of 253.7 nm, and is introduced into the quartz tube with argon as a carrier for cold atomic absorption.

Determination. Within a certain concentration range, the absorption value is proportional to the mercury content, which is compared with the mercury standard series to determine the mercury content.

4 Reagents and materials

Unless otherwise stated, only the identified premium grade reagents were used in the analysis and the test waters met the requirements of GB/T 6682.

4.1

Mercury chloride. The mass fraction is above 99.9%.

4.2

Sodium hydroxide.

4.3

The mass fraction is 0.5% sodium hydroxide solution. Weigh 0.50g sodium hydroxide (4.2) in a 100mL volumetric flask and dilute to the water with water.

Degree, shake well.

4.4

Sodium borohydride.

4.5

Mass fraction of 0.5% sodium borohydride solution. Weigh 0.50 g of sodium borohydride (4.4) and place it in (4.3) and mix.

4.6

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

4.7

Hydrochloric acid (1+11).

4.8

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

4.9

Nitric acid (1+9).

4.10

Potassium permanganate solution (mass fraction 5%).

4.11

Mercury standard stock solution. Accurately weigh 1.3540g of mercury chloride (4.1) dried in a sulfuric acid dryer for 24h in a 250mL beaker in the process, carefully add 15mL hydrochloric acid (4.6) and 5mL nitric acid (4.8), placed on the steam bath, completely dissolved, cooled, moved into the pre-added two drops in a 100 mL volumetric flask of potassium permanganate solution (4.10), dilute to the mark with water and mix. 1mL of this solution contains 1.0mg of mercury and is placed on ice.

It is kept in the box and is valid for one year.

4.12

Mercury standard working stock solution. accurately transfer 1mL mercury standard stock solution (4.11), pre-added two drops of potassium permanganate solution (4.10) and 5 mL of nitric acid (4.8) in a 100 mL volumetric flask, dilute to the mark with water and mix. 1mL of this solution contains 0.010mg of mercury.

Store in the refrigerator. Valid for one month.

4.13

Mercury standard working solution. accurately remove 10mL mercury standard working stock solution (4.12) with two drops of potassium permanganate solution beforehand.

(4.10) and 5 mL of nitric acid (4.8) in a 100 mL volumetric flask, dilute to the mark with water and mix. 1mL of this solution contains 0.001mg of mercury,