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

GB/T 223.80-2007

**Iron, steel and alloy - Determination of trace bismuth and
arsenic contents - Hydride generation - atomic fluorescence
spectrometric method**

钢铁及合金 铋和砷含量的测定 氢化物发生-原子荧光光谱法

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Foreword

GB/T 223 Appendix A of this section is informative appendix. This part is proposed by the China Iron and Steel Association. This part of the National Steel Standardization Technical Committee. This section is responsible for drafting unit. Iron and Steel Institute. The main drafters of this section. ROCKETS, Liu. Determination of steel and alloy bismuth and arsenic content Hydride Generation - Atomic Fluorescence Spectrometry

1 Scope

GB/T 223.80-2007 is the Chinese national standard on iron, steel and alloy - determination of trace bismuth and arsenic contents - hydride generation - atomic fluorescence spectrometric method, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 11 September 2007 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 February 2008. Classification: ICS 77.080.01, CCS H11. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

GB/T 223 provisions of this section using hydride generation - Determination of bismuth and arsenic in steel and alloy by atomic fluorescence spectrometry method. This method is applicable to the determination of bismuth and arsenic in steel and nickel-based alloys. Determination of bismuth content range. 0.00005% to 0.01%; Determination of arsenic content range. 0.00005% to 0.01%.

2 Normative references

The following documents contain provisions which, through reference

GB/T 223 of this text, constitute provisions of this section. For dated reference documents

Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 6379.1 measurement methods and results of Accuracy (trueness and precision) - Part 1. General principles and definitions (GB/T 6379.1-2004, ISO 5725-1.1994, IDT)

GB/T 6379.2 measurement methods and results of Accuracy (trueness and precision) - Part 2. Determine the standard measurement method to repeat Of the basic methods of reproduction (GB/T 6379.2-2004, ISO 5725-2.1994, IDT)

GB/T 20066 Steel and iron - Determination of the chemical composition of the sample probe and sample preparation method (GB/T 20066-2006,

ISO 14284. 1996, IDT) Principle

3 Samples with hydrochloric acid, nitric acid dissolved, thiosemicarbazide suppress interference matrix element, such as tungsten with phosphoric acid complex is easily hydrolyzed elements, with anti-bad Ascorbic acid solution of arsenic (V) reduction of arsenic (III). With potassium borohydride as a reducing agent, reduced to produce bismuth, arsenic hydride, by a carrier gas (argon) with The quartz atomizer in atomic, atomic fluorescence produced in special bismuth, arsenic hollow cathode lamps emit light excitation, the measured atomic fluorescence strength.

4 Reagents and materials

Unless otherwise indicated, used in the analysis confirmed only for the gifted class pure reagents and secondary distilled water or equivalent purity.

4.1 hydrochloric acid, rho about 1.19g/mL.

4.2 nitric acid, rho about 1.42g/mL.

4.3 sulfuric acid, rho about 1.84g/mL.

4.4 phosphoric acid, rho about 1.69g/mL.

4.5 hydrobromide, rho about 1.49g/mL.

4.6 sulfuric acid - mixing phosphoric acid, sulfuric acid, phosphoric acid + water + = 1 + 1 + 2. 300mL beaker was added in 20mL of water was added with stirring 120mL of sulfuric acid (4.3) and 120mL phosphoric acid (4.4), cooled to room Temperature, stirring was added 20mL hydrobromic acid (4.5), is heated and evaporated to take the white smoke of sulfuric acid, is removed, cooled to room temperature, the above-described operation is repeated (2 ~ 3) times. With a small amount of water purged table dish and cup wall, heating evaporation to take the white smoke of sulfuric acid, repeat (2-3) times to remove

residual hydrobromide. in 1000mL beaker add water 200mL, 200mL added with stirring the above purified phosphoric acid sulfuric acid mixture, cooled to room temperature and transferred to plastic Feeding bottle aside.

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