ICS 77.080.01
CCS H11

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 223.81-2007

Iron, steel and alloy - Determination of total aluminum and total boron contents - Microwave digestion - inductively coupled plasma mass spectrometric method

钢铁及合金 总铝和总硼含量的测定 微波消解-电感耦合等离子体质谱法

Issued on: September 11, 2007 **Implemented on: February 1, 2008**

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

Table of Contents

Foreword

GB/T 223 This part of the Annex A, Annex B, Annex C and Annex D is informative appendix. This part is proposed by the China Iron and Steel Association. This part of the National Steel Standardization Technical Committee. This part of the main drafting unit. Iron and Steel Research Institute, Capital Normal University. The main drafters of this section. Liu, ROCKETS, Zhang Cuimin, Luoqian Hua, Wang Yanze, Zhang, Chen Yuhong. Determination of total aluminum, steel and alloy and total boron content Microwave digestion - inductively coupled plasma mass spectrometry

1 Scope

GB/T 223.81-2007 is the Chinese national standard on iron, steel and alloy - determination of total aluminum and total boron contents - microwave digestion - inductively coupled plasma mass 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.

This section GB/T 223 specifies the microwave digestion - inductively coupled plasma mass spectrometry steel and alloy total aluminum and total boron content. This method is applicable to the determination of total iron, steel and aluminum alloy and total boron content, the total aluminum content measurement range. 0.0005% to 0.10%; Determination of total boron content range. 0.0002% to 0.10%.

2 Normative references

The following documents contain provisions which, through reference in

GB/T 223 in this section, constitute provisions of Part. For dated references Documents, all subsequent amendments (not including errata content) or revised edition are not adapted to this section, however, encouraged to reach under this section Research into whether the parties to the agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 6379.1 Test Method and Accuracy (trueness and precision) Results - Part 1. General principles and definitions (GB/T 6379.1-2004, ISO 5725-1.1994, IDT)

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

GB/T 20066 Steel and iron - Sampling and determination of the chemical composition of the sample with a sample preparation method (GB/T 20066-2006, ISO 14284. 1996, IDT)

ISO 8655-2.2002 ram capacity to take dispenser plunger instrument

3 With microwave digestion oven, the sample with hydrochloric acid, nitric acid and hydrofluoric acid mixed acid decomposition test solution introduced into inductively coupled plasma mass spectrometer. Measurement Volume mass signal intensity of each element isotopes. Calibration blank and calibration solutions to the main elements of the test sample and sample decomposition acid substrate horses Hotels, beryllium and scandium as the internal standard calibration instrument sensitivity drift and matrix effects.

4 Reagents

Unless otherwise indicated, the use of approved reagents and high-purity distilled water only in the analysis of secondary or equivalent purity. HCl 4.1, p from about 1.19g/mL, aluminum, boron content should be less than 20ng/mL.

4.2 nitric acid, rho about 1.42g/mL, aluminum, boron content should be less than 20ng/mL. Hydrofluoric acid 4.3, 1 + 1, aluminum, boron content should be less than 20ng/mL, such as greater than 20ng/mL, can be purified by methods such as isothermal diffusion. Isothermal Diffusion purification method can be found in Informative Annex A.

4.4 aluminum standard solution, 1000μg/mL Weigh 0.2500g pure aluminum (mass fraction of not less than 99.9%), heated and dissolved with 25mL of hydrochloric acid (1 + 1), was transferred to a 250mL container Volumetric flask, dilute to the mark and mix. This standard solution stored in a polyethylene bottle. This solution 1mL containing 1000μg aluminum.

4.5 Boron standard solution, 1000μg/mL Weigh 0.5720g of boric acid previously dried in a dryer after 24h (H3BO3 content of not less than 99.9%), with 30mL water