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INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

SN/T 3515-2013

Iron, steel and alloy. Determination of boron, titanium, zirconium, niobium, tin, antimony, tantalum, tungsten and lead. Inductively coupled plasma mass spectrometric

钢铁及合金 硼、钛、锆、铌、锡、锑、钽、钨、铅的测定 电感耦合等离子体质谱法

(English Translation)

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Foreword

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

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

This standard was drafted. People's Republic of China Guangdong Entry Inspection and Quarantine Bureau, People's Republic of China Liaoning Entry-Exit Inspection and Quarantine Bureau.

1 Scope

This standard specifies the determination of boron steel and low-alloy, titanium, zirconium, niobium, tin, antimony, tantalum, tungsten, lead content by inductively coupled plasma mass spectrometry (ICP-MS) method.

This standard applies to steel and boron, titanium, zirconium, niobium, tin, antimony, tantalum, tungsten, lead alloys Determination of low detection limit of the elements shown in Table 1.

Table 1 Unit The detection limit of each element in milligrams per kilogram (mg/kg)

Element B Ti Zr Nb Sn Sb Ta W Pb the detection limit 0.5 2.0 1.0 1.0 1.0 0.5 1.0 5.0 0.1

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 modifications thereto) are applicable to this document.

Preparation of standard solution of GB/T 602 Determination of impurities in chemical reagents Laboratory use specifications and test methods GB/T 6682-2008 Analysis

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3 Method summary

Using a closed microwave system, digestion with nitric acid and hydrofluoric acid sample digestion solution diluted to volume, using the internal standard line, introducing Inductively Coupled MS determination of boron, titanium, zirconium, niobium, tin, antimony, tantalum, tungsten and lead plasma.

4 Reagents and materials

In addition to the provisions use the gifted class pure reagents, test water should be consistent with a water GB/T 6682-2008 specified in 4.2.

4.1
nitric acid (rho = 1.19g/mL).

4.2
nitric acid solution (595).

4.3
Hydrofluoric acid (rho = 1.13g/mL).

4.4
boron, titanium, zirconium, niobium, tin, antimony, tantalum, tungsten, lead mixed standard stock solution. 1000μg/mL.

4.5
internal standard. 6Li, 45Sc, 89Y, 115In, 159Tb, 209Bi mixed standard solution, 1μg/mL.

4.6
internal standard solution. an internal standard (4.5) diluted 100 times to give 10μg/L.

4.7
purity argon gas (purity greater than 99.999%).

5 Apparatus

5.1
Inductively Coupled Plasma Mass Spectrometer. Instrument parameters and conditions of use, see Appendix A.

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