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

GB/T 223.55-2008

Replacing GB/T 223.55-1987; GB/T 223.56-1987

**Iron, steel and alloy -- Determination of tellurium content --
Oscillo-polarographic method**

钢铁及合金 碲含量的测定 示波极谱法

(English Translation)

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Foreword

This section GB/T 223 is a (direct) measurement of GB/T 223.55-1987 "steel and alloy chemical analysis Oscillopolarographic method Given the amount of tellurium "and GB/T 223.56-1987" steel and alloy chemical analysis method sulfhydryl cotton fiber separation - determination of tellurium content oscillopolarographic Law "Integration Amendments.

This Part replaces GB/T 223.55-1987 and GB/T 223.56-1987.

This portion of the GB/T 223.55-1987, GB/T 223.56-1987 compared primarily with the following modifications.

- Increased headline analysis of reagent and water content and instructions to modify the standard solution and the solution concentration of representation;
- Modify weighed sample quantity represents;
- Edit "Table 1" tellurium mass fraction range;
- Modify standard solution added in an amount of tellurium and delete the "standard addition method" of the contents;
- Modify formula and formula result in the amount of representation;
- Corrected the error in Method Two. tellurium content is 0.00004% 0.00010% of the allowable difference from ".00040%" is replaced by "0.000040%";
- Method two added tellurium standard solution 0.20μg/mL of.

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 units. China Iron and Steel Research Institute Group.

1 Scope

This section GB/T 223 requirements using oscillopolarographic (direct) method and Sulfhydryl Cotton - determination steel and alloy tellurium content.

This section OSCILLOPOLAROGRAPHIC (direct) method is suitable for iron, raw iron and low alloy steel mass fraction of 0.001% to 0.050% tellurium content Determination; this section Sulfhydryl Cotton - oscillopolarographic law applies to raw cast iron, high, quality, and low-alloy steel and high temperature alloys fraction Determination of 0.00004% to 0.001% of the tellurium content.

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 20066 Steel and iron - Sampling and determination of the chemical composition of the sample with a sample preparation method

3.1 Principle

With hydrochloric acid, nitric acid decomposition test material, evaporated divisible nitric acid, sulfuric acid - sodium chloride - mixed base solution of hydroxylamine hydrochloride, tellurium (IV) in peak potential-0.78V (Saturated calomel electrode), was a stable, sensitive oscillopolarographic current peak. Measuring the derivative of the current peak high concentration of tellurium in Within 0.20μg/25mL ~ 15μg/25mL range, peak height is proportional to the concentration.

75mg calcium (II), 50mg magnesium (II), Co (II), 15mg of iron (III), 10mg zinc (II), 5mg lead (II), aluminum (III), 2.5mg Chromium (III), thallium (I), zirconium (IV), 2.0mg of manganese (II), molybdenum (VI), 1.0mg of copper (II), Ni (II), 0.5mg arsenic (III), beryllium (ii), bismuth (III), cadmium (II), gallium (III), indium (III), niobium (V), tin (IV), tantalum (V), titanium (IV), vanadium (V), 250μg antimony (III), 50μg silver (i), Gold (III), tin (II), tungsten (VI), 100μg hafnium (IV), 15μg chromium (IV), 5μg Rhenium (VII) exists, does not interfere with 2.5μg tellurium (IV) measurement.

Selenium (IV) serious interference, may be added hydrobromic acid was removed by evaporation. Those who have not traveled more than the above limit, the sample after treatment, which can be measured directly tellurium content.

3.2 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled water or equivalent purity.

3.2.1

hydrochloric acid, rho about 1.19g/mL.

3.2.2

nitrate, rho about 1.42g/mL.

3.2.3

perchloric acid, rho about 1.67g/mL.

3.2.4

hydrobromide, rho about 1.49g/mL.

3.2.5

sulfate, 1 + 1. Take 100mL water, placed in a graduated 250mL beaker was slowly added (rho 100mL sulfuric acid about 1.84g/mL), with stirring, cooled, diluted with water to the mark with 200mL, stir, add the reagent bottle and set aside.

3.2.6

sodium chloride solution, 300g/L.