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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Iron, steel and alloy - Determination of copper - 2, 2'-Biquinoline spectrophotometric method

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for

Standardization Work Part 1.Structure and Drafting Rules of Standardization Documents"

Drafting.

The translation method used in this document is equivalent to ISO 4946.2016 "Determination of Copper Content in Steel and Cast Iron 2,2'-Biquinoline Spectrophotometry".

A chapter "Terms and Definitions" has been added to this document.

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 6682-2008 Analytical laboratory water specifications and test methods (ISO 3696.1987, MOD)

---GB/T 12806-2011 Laboratory glassware single mark volumetric flask (ISO 1042.1998, NEQ)

---GB/T 20066-2006 Sampling and sample preparation methods for the determination of the chemical composition of steel and iron (ISO 14284.1996,

IDT)

The following editorial changes have been made to this document.

---In order to be consistent with the existing series of standards, the standard name is changed to "Determination of Copper Content in Steel and Alloy 2,2'-Biquinoline Spectroscopy

Degree of Law.

This document was proposed by the China Iron and Steel Association.

This document is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183).

Drafting organizations of this document. IRON & NAC Testing Technology Co., Ltd., Central Iron and Steel Research Institute, Hengyang Valin Steel Pipe Co., Ltd.

1 Scope

This document specifies the 2,2'-biquinoline spectrophotometric method for the determination of copper content in steel and cast iron.

This document is applicable to the determination of copper content with a mass fraction of 0.02% to 5%.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

ISO 648 Laboratory glassware-Single-volumepipettes

ISO 1042 Laboratory glassware-One-mark volumetric flask

flasks)

ISO 3696 Analytical laboratory water specifications and test methods (Waterforanalyticallaboratoryuse-Specification

andtestmethods)

ISO 14284 Sampling and sample preparation methods for the determination of the chemical composition of steel and iron (Steelandiron-Samplingand

preparationofsamplesforthedeterminationofchemicalcomposition)

3 Terms and definitions

There are no terms and definitions that need to be defined in this document.

4 Principle

The sample is decomposed with a suitable acid. Take perchloric acid fumes to remove hydrochloric acid and nitric acid, and dehydrate silicic acid. In an acidic solution, use ascorbic acid to

Cu2 is reduced to Cu, and Cu forms a colored compound with 2,2'-biquinoline. Spectrophotometric measurement was performed at a wavelength of 545nm.

5 Reagents

Unless otherwise stated, only use the secondary water identified as analytically pure reagents and ISO 3696 in the analysis.

5.4 Perchloric acid, rho is about 1.54g/mL.

Warning---Usually in the presence of ammonia, nitrous fumes or organic substances, perchloric acid vapor may cause an explosion.

Perchloric acid with a rho of about 1.67 g/mL can also be used. 100mLrho about 1.54g/mL perchloric acid is equivalent to 79mLrho about 1.67g/mL

perchloric acid.