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Iron, steel and alloy - Determination of calcium and magnesium contents - Inductively coupled plasma atomic emission spectrometric method

钢铁及合金 钙和镁含量的测定 电感耦合等离子体原子发射光谱法

(ISO 13933:2014, Steel and iron - Determination of calcium and magnesium - Inductively coupled plasma atomic emission spectrometric method, IDT)

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Foreword

GB/T 223 is divided into several parts.

This Part is Part 88 of GB/T 223.

This Part is drafted in accordance with the rules given in GB/T 1.1-2009.

This Part, using translation method, is identical to ISO 13933:2014 "Steel and iron - Determination of calcium and magnesium - Inductively coupled plasma atomic emission spectrometric method".

China's documents which have a consistent correspondence with the international documents normatively referenced in this Part are as follows:

- GB/T 6682-2008 Water for analytical laboratory use - Specification and test methods (ISO 3696:1987, MOD)

- GB/T 12806-2011 Laboratory glassware - One-mark volumetric flasks (ISO 1042:1998, MOD)

- GB/T 20066-2006 Steel and Iron - Sampling and Preparation of Samples for the Determination of Chemical Composition (ISO 14284:1996, IDT)

This Part has made the following editorial change:

- In order to be consistent with the existing standard series, the name of this Part is changed to "Iron, steel and alloy - Determination of calcium and magnesium contents - Inductively coupled plasma atomic emission spectrometric method".

This Part was proposed by China Iron and Steel Association.

This Part shall be under the jurisdiction of National Technical Committee 183 on Steel of Standardization Administration of China (SAC/TC 183).

Drafting organizations of this Part: NCS Testing Technology Co., Ltd., Baosteel Special Metals Co., Ltd., Angang Steel Co., Ltd., Wuhan Iron and Steel Co., Ltd., China Metallurgical Construction Research Institute Co., Ltd.

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Iron, steel and alloy - Determination of calcium and magnesium contents - Inductively coupled plasma atomic emission spectrometric method

1 Scope

This Part of GB/T 223 specifies a method for determination of calcium and magnesium contents in pure iron, cast iron, steel, and superalloy by inductively coupled plasma atomic emission spectrometry.

This Part is applicable to the determination of calcium and magnesium contents (mass fraction) in the range of 0.0005 % to 0.006 % and 0.0005 % to 0.20 %, respectively.

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

ISO 385 Laboratory glassware - Burettes

ISO 648 Laboratory glassware - Single-volume pipettes

ISO 1042 Laboratory glassware - One mark volumetric flasks

ISO 3696 Water for analytical laboratory use - Specification and test methods

ISO 14284 Steel and iron - Sampling and preparation of samples for the determination of chemical composition

3 Principle

A test portion is dissolved in a hydrochloric, nitric and hydrofluoric acid mixture and fumed with perchloric acid. USE hydrochloric acid and nitric acid to dissolve the salts. An internal standard element (if used) are added and the solution is diluted to a known volume. The solution is filtered if necessary, nebulized into an ICP spectrometer and the intensity of the emitted analytical light from each element measured simultaneously with the intensity of the light emitted by the

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