BS ISO 10203:2015

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Iron ores — Determination of calcium — Flame atomic absorption spectrometric method

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National foreword

This British Standard is the UK implementation of ISO 10203:2015. It supersedes BS ISO 10203:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/58, Iron ores.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 86787 3

ICS 73.060.10

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2015.

Amendments issued since publication

Date	Text affected

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INTERNATIONAL STANDARD

ISO 10203

Third edition
2015-07-01

Iron ores — Determination of calcium — Flame atomic absorption spectrometric method

Minerais de fer — Dosage du calcium — Méthode par spectrométrie d'absorption atomique dans la flamme

Reference number
ISO 10203:2015(E)

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 02, *Chemical analysis*.

This third edition cancels and replaces the second edition (ISO 10203:2006), which has been technically revised.

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INTERNATIONAL STANDARD ISO 10203:2015(E)

Iron ores — Determination of calcium — Flame atomic absorption spectrometric method

WARNING — This International Standard might involve hazardous materials, operations, and equipment. This International Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this International Standard to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies a flame atomic absorption spectrometric method for the determination of the mass fraction of calcium in iron ores.

This method is applicable to mass fractions of calcium between 0,010 % and 8,00 % in natural iron ores, iron ore concentrates, and agglomerates, including sinter products.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 648, *Laboratory glassware — Single-volume pipettes*

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*

ISO 3082, *Iron ores — Sampling and sample preparation procedures*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 7764, *Iron ores — Preparation of predried test samples for chemical analysis*

ISO 80000-1:2009, *Quantities and units — Part 1: General*

ISO Guide 35, *Reference materials — General and statistical principles for certification*

3 Principle

The test portion is decomposed by the treatment with hydrochloric acid and a small amount of nitric acid, and then evaporated to dehydrate silica, followed by dilution and filtration.

The residue is ignited and silica is removed by evaporation with hydrofluoric and sulfuric acids. The residue is fused with sodium carbonate and the cooled melt is dissolved in the filtrate.

The solution obtained is aspirated into the flame of an atomic absorption spectrometer using a dinitrogen oxide/acetylene burner.

The absorbance values obtained for calcium are compared with those obtained from calibration solutions.

4 Reagents

During the analysis, use only reagents of recognized analytical grade and only water that complies with Grade 2 of ISO 3696.

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