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Iron ores — Determination of chromium content — Flame atomic absorption spectrometric method

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

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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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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 2, *Chemical analysis*.

This second edition cancels and replaces the first edition (ISO 15634:2005), which has been technically revised.

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Iron ores — Determination of chromium content — Flame atomic absorption spectrometric method

WARNING — This International Standard may 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 chromium content of iron ores.

This method is applicable to chromium contents between 0,001 6 % and 0,1 % (mass fractions) 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*

3 Principle

The test portion is decomposed by treatment with hydrochloric and nitric acids.

The major portion of iron in the filtrate is removed by extraction with 4-methylpentan-2-one.

The insoluble residue is ignited and the silicon dioxide is removed by evaporation with hydrofluoric and sulfuric acids. The residue is fused with a mixture of sodium carbonate and sodium tetraborate, and then dissolved with hydrochloric acid and combined with the main solution.

The solution is aspirated into the flame of an atomic absorption spectrometer using a nitrous oxide-acetylene burner.

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

4 Reagents

During the analysis, use only reagents of recognized analytical grade.

4.1 Water, complying with grade 2 as defined in ISO 3696.

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