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Iron ores — Determination of metallic iron content — Iron(III) chloride titrimetric method

Minerais de fer — Dosage du fer métallique — Méthode titrimétrique au chlorure de fer(III)

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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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The committee responsible for this document is ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 2, *Chemical analysis*.

This first edition of ISO 16878 cancels and replaces ISO/TS 16878:2010, which has been technically revised.

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Iron ores — Determination of metallic iron content — Iron(III) chloride titrimetric method

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

1 Scope

This International Standard specifies a titrimetric method for the determination of the metallic iron content of reduced iron ores.

This method is applicable to a concentration range of 57,5 % mass fraction to 90,5 % mass fraction of the metallic iron.

NOTE The term "metallic iron" means those forms of iron not bonded to oxygen or not present as pyrite.

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 385, *Laboratory glassware — Burettes*

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

ISO 10835, *Direct reduced iron and hot briquetted iron — Sampling and sample preparation*

ISO 11323, *Iron ore and direct reduced iron — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11323 apply.

4 Principle

Iron present in the oxidation state Fe^0 in the sample is oxidized to Fe^{+2} by the action of $FeCl_3$ according to the following reaction:

$$Fe^0 + 2Fe^{+3} \longrightarrow 3Fe^{+2}$$

The Fe^{+2} is titrated with potassium dichromate solution using the sodium diphenylaminesulfonate indicator.

5 Reagents

During the analysis, use only reagents of recognized analytical reagent grade and only distilled water or water of equivalent purity.

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