
**Iron ores — Determination of total
iron content —**

**Part 2:
Titrimetric methods after
titanium(III) chloride reduction**

Minerais de fer — Dosage du fer total —

*Partie 2: Méthodes titrimétriques après réduction au chlorure de
titane(III)*



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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 2, *Chemical analysis*.

This third edition cancels and replaces the second edition (ISO 2597-2:2015), which has been technically revised with the following changes:

- the Scope has been reworded to describe the second method using perchloric acid;
- a terms and definitions clause has been added as [Clause 3](#) and the subsequent clauses have been renumbered accordingly;
- in [4.2](#) (previously 3.2) a description of the second method using perchloric acid has been added;
- in the second paragraph of [4.1.1](#) (previously 3.1.1), “water more hydrochloric acid” has been replaced with “water and hydrochloric acid”;
- in [5.19](#) (previously 4.19), “5,58” has been replaced with “7,978 1”;
- [Clause 5](#), potassium disulfate ($K_2S_2O_7$) has been added as a reagent ([5.23](#));
- in the sixth paragraph of [8.5.1.1](#) (previously 7.5.1.1), “4.20” has been replaced with “[5.23](#)”;
- in the description for V_1 in [9.1](#) (previously 8.1), “4.13” has been replaced with “[5.20](#)”;
- in [9.2.4](#) (previously 8.2.4), [Formula \(8\)](#) and the relevant descriptions have been modified to harmonize this subclause across all International Standards for which ISO/TC 102/SC 2 is responsible.

A list of all parts in the ISO 2597 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Iron ores — Determination of total iron content —

Part 2:

Titrimetric methods after titanium(III) chloride reduction

WARNING — This document may involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate health and safety practices.

1 Scope

This document specifies two titrimetric methods, free from mercury pollution, for the determination of total iron content in iron ores, using potassium dichromate as titrant after reduction of the iron(III) by tin(II) chloride and titanium(III) chloride. The excess reductant is then oxidized by either dilute potassium dichromate (Method 1) or perchloric acid (Method 2).

Both methods are applicable to a concentration range of 30 % mass fraction to 72 % mass fraction of iron in natural iron ores, iron ore concentrates and agglomerates, including sinter products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 648, *Laboratory glassware — Single-volume pipettes*

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

ISO 2596, *Iron ores — Determination of hygroscopic moisture in analytical samples — Gravimetric, Karl Fischer and mass-loss methods*

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

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

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>