



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6730.5-2022

**Iron ores - Determination of total iron content - Titrimetric
methods after titanium(III) chloride reduction**

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Foreword

This document was drafted in accordance with the rules in GB/T 1.1-2020 Directives for Standardization - Part 1.Rules for the Structure and Drafting of Standardizing Documents.

This document is Part 5 of GB/T 6730.See Appendix A for the parts of GB/T 6730 that have been issued.

This document serves as a replacement of GB/T 6730.5-2007 Iron Ores - Determination of Total Iron Content - Titanium (III) Chloride Reduction Methods. In comparison with GB/T 6730.5-2007, apart from structural adjustments and editorial modifications, the main technical

changes are as follows.

- a) "Normative References" is modified (see Chapter 2; Chapter 2 of Version 2007);
- b) "Terms and Definitions" is added (see Chapter 3);
- c) "melting-acidification" is modified into "melting-filtration" (see 8.5.1.2; 7.5.1.2 of Version 2007);

d) The method of handling excess adding of stannous chloride solution is added (see 8.5.2);

e) The expression of NOTE in "8.5.3 Titration" is modified (see 8.5.3; 7.5.3 of Version 2007);

f) The expressions of "precision", "correctness inspection" and "calculation of final results" are modified (see Chapter 9; Chapter 8 of Version 2007).

This document modifies and adopts ISO 2597-2:2019 Iron Ores - Determination of Total Iron

Content - Part 2. Titrimetric Methods after Titanium (III) Chloride Reduction. In comparison with ISO 2597-2:2019, apart from editorial modifications, the main technical changes are as follows.

a) In Normative References, national standards are adopted to replace the corresponding international standards, and GB/T 601 and GB/T 8170 are added (see Chapter 2);

b) For excess reducing agent, this document uses dilute potassium dichromate solution for oxidation; ISO 2597-2:2019 uses dilute potassium dichromate solution for oxidation (method 1) or perchloric acid for oxidation (method 2);

c) For the crucible used for melting-filtration decomposition specimen, this document uses corundum crucible; ISO 2597-2:2019 uses corundum crucible, zirconium crucible or vitreous carbon crucible;

d) For the heating mode of melting-filtration, this document directly adopts a high-temperature furnace; ISO 2597-2:2019 also uses a burner for heating, in addition to the high-temperature furnace;

e) For the oxidation-reduction indicating agent, this document adopts sodium tungstate as the indicating agent; ISO 2597-2:2019 uses isatin as the indicating agent;

f) This document adds the separation method applied when the copper content is high;

g) This document adopts the numerical value rounding-off method provided in GB/T

8170 to replace the numerical value rounding-off method provided in "calculation of

final results" in ISO 2597-2:2019.

Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by China Iron and Steel Association.

This document shall be under the jurisdiction of National Technical Committee 317 on Iron Ore

and Direct Reduced Iron of Standardization Administration of China (SAC/TC 317).

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1 Scope

This document specifies the method for the determination of total iron content by potassium dichromate titration method after reduction of iron with titanium trichloride.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in this text. In terms of references with a specified date, only

versions with a specified date are applicable to this document. In terms of references without a

specified date, the latest version (including all the modifications) is applicable to this document.

3 Terms and Definitions

This document does not have terms or definitions that need to be defined.

4 Principle

For specimen containing over 0.05% vanadium, use alkali to melt it; use water to leach the

cooled melt and filter it; after using sodium hydroxide solution to rinse the precipitate, use hydrochloric acid to dissolve the precipitate.

5 Reagents

Unless it is otherwise specified in the analysis, only approved analytically pure reagents, and

distilled water that complies with the stipulations of GB/T 6682, or water of equivalent purity can be used.

6 Instruments

Unless it is otherwise specified, the used one-mark volumetric flasks and one-mark pipettes shall comply with the stipulations of GB/T 12806 and GB/T 12808.

7 Specimen Collection and Preparation

Ores with high content of chemically combined water or readily oxidizable substance

For the following types of ores, in accordance with GB/T 6730.3, prepare air balance specimens.

8 Analytical Procedures

Carry out a blank test with the specimen analysis (see 8.5.4 for the requirements). All reagents

must be taken from the same reagent bottle. When analyzing multiple specimens, a blank value

may be applicable.

9 Result Calculation and Expression

In accordance with the steps of Appendix B, in accordance with Formula (2), calculate the result

of independent repeated measurements. Compare it with the repeatability limit (r) and determine the final analysis result.

10 Test Report

The test report shall include the following information.