International Standard

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Steel and iron — Determination of chromium content — Indirect titration method

Aciers et fontes — Détermination de la teneur en chrome — Méthode par titration indirecte

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Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Principle ... **1**

5 Reagents ... **2**

6 Apparatus ... **3**

7 Sampling and sample preparation of the test sample ... **4**

8 Determination ... **4**
8.1 Preparation of the test solution ... 4
8.2 Titration ... 4

9 Expression of results ... **5**
9.1 Method of calculation ... 5
9.2 Correction of the interference of vanadium ... 5
9.3 Precision ... 5

10 Interpretation of the results ... **6**

11 Test report ... **7**

Annex A (informative) **Additional information on the international interlaboratory precision tests** ... **8**

Annex B (informative) **Graphical representation of precision data** ... **10**

Bibliography ... **11**

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Foreword

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This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 1, *Methods of determination of chemical composition*.

This second edition cancels and replaces the first edition (ISO 15355:1999), which has technically been revised.

The main changes are as follows:

— updated the normative references;

— added mandatory Clause 3 and renumbered subsequent clauses;

— re-assessed the precision data.

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Steel and iron — Determination of chromium content — Indirect titration method

1 Scope

This document specifies a potentiometric titration method for the determination of chromium content in steel and iron.

The method is applicable to chromium contents between 1 % (mass fraction) and 35 % (mass fraction).

This document applies to steel and iron with vanadium contents less than 1 % (mass fraction) for chromium contents higher than 10 % (mass fraction) and less than 0,2 % (mass fraction) for chromium contents less than 10 % (mass fraction).

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

ISO 14284, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition*

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Principle

Fusion of the sample with sodium peroxide followed by acidification with sulfuric acid.

Oxidization of chromium (III) to dichromate with peroxodisulfate using silver as a catalyst.

Reduction of the dichromate with an excess of a solid iron (II) salt and potentiometric back titration of the excess with a dichromate solution.

Any interference from vanadium is corrected mathematically.

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