



BSI Standards Publication

Iron ores — Determination of aluminium

Part 1: Flame atomic absorption spectrometric method

National foreword

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The UK participation in its preparation was entrusted to Technical Committee ISE/58, Iron ores.

A list of organizations represented on this committee can be obtained on request to its secretary.

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REPORT

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**Iron ores — Determination of
aluminium —**

**Part 1:
Flame atomic absorption
spectrometric method**

Minerais de fer — Dosage de l'aluminium —

*Partie 1: Méthode par spectrométrie d'absorption atomique dans
la flamme*



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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	1
6 Apparatus	2
7 Sampling and samples	3
7.1 Laboratory sample.....	3
7.2 Preparation of predried test samples.....	3
8 Procedure	3
8.1 Number of determinations.....	3
8.2 Test portion.....	4
8.3 Blank test and check test.....	4
8.4 Determination.....	4
8.4.1 Decomposition of the test portion.....	4
8.4.2 Treatment of the residue.....	4
8.4.3 Preparation of the test solution.....	4
8.4.4 Adjustment of the atomic absorption spectrometer.....	5
8.4.5 Atomic absorption measurements.....	5
9 Expression of results	6
9.1 Calculation of mass fraction of aluminium.....	6
9.2 General treatment of results.....	6
9.2.1 Repeatability and permissible tolerance.....	6
9.2.2 Determination of analytical result.....	7
9.2.3 Between-laboratory precision.....	7
9.2.4 Check for trueness.....	7
9.2.5 Calculation of final result.....	8
9.3 Oxide factor.....	9
10 Test report	9
Annex A (informative) Flowchart of the procedure for the acceptance of analytical values for test samples	10
Annex B (informative) Derivation of repeatability and permissible tolerance formulae	11
Annex C (informative) Precision data obtained by international analytical trials	12
Bibliography	13

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

This first edition Technical Report cancels and replaces the second edition (ISO 4688-1:2006), which has been technically revised. It has been converted to a Technical Report as it is no longer suitable for determination of aluminium as a referee method.

Iron ores — Determination of aluminium —

Part 1:

Flame atomic absorption spectrometric method

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 describes a flame atomic absorption spectrometric method for the determination of the mass fraction of aluminium in iron ores.

This method is applicable to mass fractions of aluminium between 0,1 % and 10 % in natural iron ores, iron ore concentrates and agglomerates, including sinter products.

2 Normative references

There are no normative references in this document.

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:

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

4 Principle

The test portion is decomposed by treatment with hydrochloric acid and a small amount of nitric acid.

The mixture is evaporated to dehydrate silica, followed by dilution and filtration.

The residue is ignited and silica is removed by evaporation with hydrofluoric and sulfuric acids. The residue is then fused with sodium carbonate and the cooled melt is dissolved in the filtrate.

The solution obtained is aspirated into the flame of an atomic absorption spectrometer using a dinitrogen oxide/acetylene burner.

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

5 Reagents

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

5.1 Sodium carbonate (Na₂CO₃), anhydrous.