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Iron ores — Experimental methods for checking the precision of sampling, sample preparation and measurement

Minerais de fer — Méthodes expérimentales de contrôle de la fidélité de l'échantillonnage, de préparation des échantillons et de mesurage

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 1, *Sampling*.

This fifth edition cancels and replaces the fourth edition (ISO 3085:2002), which has been technically revised. The main change compared to the previous edition is the use of the mean square difference between assay pairs, as described in the Introduction.

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.

Introduction

The key change between this document and the previous edition is the use of the mean square difference between assay pairs to estimate the numerical value of the precision instead of the mean difference between assay pairs, noting that the use of mean square differences was included in ISO 3085:1996, Annex B, as an alternative method only. The use of mean square differences avoids overestimating the sampling system's capability, thereby limiting the opportunity for improvement. In addition, when possible measurement outliers are identified, the process (such as sampling, sample preparation or measurement) under investigation may not be in a state of statistical control and should be checked in order to detect assignable causes. If these assignable causes can be identified, then the set of measurements should be repeated after the assignable causes have been corrected. Otherwise, data assessment should proceed without eliminating the outliers.

Iron ores — Experimental methods for checking the precision of sampling, sample preparation and measurement

1 Scope

This document specifies experimental methods for checking the precision of sampling, sample preparation and measurement of iron ores being carried out in accordance with the methods specified in ISO 3082 and the relevant ISO standards for measurement.

This document can also be applied for the purpose of checking the precision of sampling, sample preparation and measurement separately.

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 3082:2017, *Iron ores — Sampling and sample preparation procedures*

ISO 3084, *Iron ores — Experimental methods for evaluation of quality variation*

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.

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/

4 Principle

Sampling from 20 lots or more, preferably taking twice as many increments as specified in ISO 3082 and placing the increments alternately into two gross samples. If this is impracticable or the precision testing is carried out in conjunction with routine sampling, the normal number of increments specified in ISO 3082 may be used.

Preparation of separate test samples from each gross sample and determination of relevant quality characteristics.

Analysis of the experimental data obtained and calculation of the estimated value of the precision of sampling, sample preparation and measurement for each selected quality characteristic.

Comparison of the estimated precision with that specified in ISO 3082:2017, Table 1, and necessary action taken if the estimated precision does not attain these specified values.