
International Standard



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Manganese and chromium ores — Experimental methods for checking the bias of sampling and sample preparation

Minerais de manganèse et de chrome — Méthodes expérimentales de contrôle de l'erreur systématique d'échantillonnage et de préparation des échantillons

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8541 was prepared by Technical Committee ISO/TC 65, *Manganese and chromium ores*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Manganese and chromium ores — Experimental methods for checking the bias of sampling and sample preparation

1 Scope and field of application

This International Standard specifies experimental methods for checking the bias of sampling and preparation of samples of manganese and chromium ores, whether natural or processed, when the sampling is carried out in accordance with the methods specified in the relevant International Standards.

2 References

ISO 4296/1, *Manganese ores — Sampling — Part 1: Increment sampling.*

ISO 4296/2, *Manganese ores — Sampling — Part 2: Preparation of samples.*

3 General conditions

3.1 The sampling and preparation of samples shall be carried out in accordance with the methods specified in the relevant International Standards.

3.2 In the experimental method, the results obtained from the method to be checked (referred to as method B) shall be compared with the results of a specified reference method (referred to as method A) which is assumed to produce practically unbiased results from technical and empirical viewpoints. The comparison shall be made by use of a statistical method of test for significance of difference between two mean values of test results at the 5 % level of significance.

3.3 The quality characteristics to be selected for the purposes of experiment shall be the major chemical elements, particle size distribution or moisture content of the ore, as the case may be.

3.4 The experiment shall be conducted on at least 10 consignments or 10 parts of the consignments.

3.5 When individual increments of a sample taken by method A and that by method B are correctly paired, the method of data analysis for paired data shall be applied. In order to apply the method of paired data analysis, it is indispensable to design and to perform the field experiment so that the pairing of samples, one by method A and the other by method B, is assured technically. Such pairing is generally

assured if the two samples taken by method A and method B are from identical material and undergo identical processing and analysis almost simultaneously under similar conditions.

3.6 In cases where the pairing of individual increments of a sample taken by method A and that by method B is considered to be not sufficient, the method of data analysis for unpaired data shall be applied.

The method of unpaired data analysis used in this International Standard is based on the condition that the numbers of measurements of method A and method B are the same. Care shall be taken to obtain the same number of increments of a sample for both methods.

4 Experimental methods

4.1 Experiments for bias of sampling

4.1.1 Methods to be checked

Examples of checking the bias of methods of sampling are given in 4.1.1.1 to 4.1.1.5.

4.1.1.1 Sampling from conveyors

Method A: Stopped-belt sampling shall be the reference method in which each increment is taken from a stopped-belt conveyor at a specified place over the full width and thickness of the ore stream with the required length.

Method B: Each increment is taken from a point selected at random each time within the ore stream.

4.1.1.2 Sampling from wagons

Method A: Stopped-belt sampling (see 4.1.1.1) shall be the reference method. It is required to provide a belt conveyor system for the experiment.

Method B: A sample consisting of the required mass and number of increments is taken at random from the surface of the ore exposed during the loading or discharging of wagons or trucks.