INTERNATIONAL STANDARD

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Iron ores — Preparation of predried test samples for chemical analysis

Minerais de fer — Préparation des échantillons préséchés pour analyse chimique

Reference number
ISO 7764:2006(E)

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Foreword

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ISO 7764 was prepared by Technical Committee ISO/TC 102, *Iron ore and direct reduced iron*, Subcommittee SC 2, *Chemical analysis*.

This second edition cancels and replaces the first edition (ISO 7764:1985), which has been technically revised.

Iron ores — Preparation of predried test samples for chemical analysis

1 Scope

This International Standard specifies a method for the preparation of predried test samples of natural iron ores, and iron ore concentrates and agglomerates, including sinter products, which are to be used for the determination of analytical values of constituents on a dry basis.

The method is not applicable to the following types of ores:

a) processed ores containing metallic iron (direct-reduced iron);

b) natural or processed ores in which the mass fraction of sulfur is higher than 0,2 %;

c) natural or processed ores in which the content of combined water is higher than 2,5 % by mass.

NOTE 1 Alternatively, the loss on ignition may be determined as an estimate of the combined water content.

Where this method is not applicable, ISO 2596:1994, *Iron ores — Determination of hygroscopic moisture in analytical samples — Gravimetric and Karl Fischer methods* is used.

NOTE 2 A laboratory may elect to use ISO 2596 for all samples to determine the dry sample mass.

2 Normative references

The following referenced documents are indispensable for the application 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 3082:2000, *Iron ores — Sampling and sample preparation procedures*

3 Principle

A test sample is dried to constant mass at 105 °C.

4 Apparatus and materials

Usual laboratory equipment and the following.

4.1 Balance, capable of reading the mass of the weighing container to 0,000 1 g.

4.2 Oven, capable of accommodating several weighing bottles (4.3) and maintaining a temperature within the range 105 °C ± 2 °C.

4.3 Weighing bottle, of volume 10 ml and mass not exceeding 6 g, having a diameter of not less than 50 mm.

NOTE These dimensions are approximate and for guidance.

Bottles may be of the conventional glass type having ground-glass lids, or suitable plastic containers having tight-fitting lids. Plastic containers shall withstand 105 °C ± 2 °C. Polypropylene is suitable.

4.4 Silica gel desiccant, self indicating, dried at 105 °C for 4 h.

4.5 Desiccator, made of borosilicate glass or an appropriate plastic, of internal diameter 150 mm to 250 mm, having a vacuum stopcock that will allow the evacuation of air. The rim of the desiccator shall be lightly greased with silicon grease or petroleum jelly.

150 g to 200 g of dried silica gel (4.4) shall be replaced weekly.

5 Sampling and samples

A laboratory sample having a particle size of less than 100 µm, which has been taken and prepared in accordance with ISO 3082, shall be used.

The sample shall be thoroughly mixed immediately before use.

6 Procedure

Dry a weighing bottle (4.3) and a well-fitting lid at a temperature of 105 °C ± 2 °C and cool in a desiccator (4.5). Take, from the thoroughly mixed laboratory sample, a test portion of not more than 10 g and transfer it to the dried weighing bottle (see third paragraph of this clause). Spread the test portion evenly in the weighing bottle.

Dry the open weighing bottle with the test portion and the lid in a laboratory oven (4.2) for 2 h at 105 °C ± 2 °C. Close the weighing bottle with the lid, transfer to a desiccator and cool to room temperature (20 min to 30 min). Slightly remove the lid and quickly replace it again, then weigh the bottle (with the lid on) to the nearest 0,000 1 g (m_1).

The test sample should be taken in multiple increments, in such a way that it is representative of the whole contents of the container.

Transfer the test portion quickly to the crucible and then weigh the weighing bottle with the lid on (m_2).

The mass of the test portion is the difference between the two weighings, m_1 and m_2.

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