
INTERNATIONAL STANDARD



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Iron ores — Determination of hygroscopic moisture in analytical samples

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

International Standard ISO 2596 was drawn up by Technical Committee ISO/TC 102, *Iron ores*.

It was approved in June 1972 by the Member Bodies of the following countries :

Australia	India	Spain
Belgium	Italy	Sweden
Canada	Japan	Turkey
Czechoslovakia	Poland	United Kingdom
Egypt, Arab Rep. of	Portugal	U.S.A.
France	Romania	U.S.S.R.
Germany	South Africa, Rep. of	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Netherlands

Iron ores — Determination of hygroscopic moisture in analytical samples

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of hygroscopic moisture in analytical samples of iron ores.

This method is applicable to natural ores, concentrates and agglomerates including sinter products.

1.1 Special case

Determination of hygroscopic moisture in analytical samples containing pyrrhotite. (See section 8.)

2 REFERENCES

ISO 3081, *Iron ores — Increment sampling — Manual method.*¹⁾

ISO 3082, *Iron ores — Increment sampling — Mechanical method.*²⁾

ISO 3083, *Iron ores — Preparation of samples.*³⁾

3 PRINCIPLE

Drying of the test portion in air at about 105 °C to constant mass. (See also section 8.)

4 APPARATUS

Ordinary laboratory equipment.

5 SAMPLING AND SAMPLE PREPARATION

Use an air-dried sample of minus 160 µm in size, which has been taken in accordance with ISO 3081 or ISO 3082 and prepared in accordance with ISO 3083.

6 PROCEDURE

6.1 Number of analyses

The determination of hygroscopic moisture shall be carried out simultaneously on two 10 g test portions of the air-dried analysis sample.

6.2 Test portion

Weigh, to the nearest 0,000 2 g, exactly 10 g of the test sample (air-dried under laboratory conditions).

6.3 Determination

Place the test portion in a weighing bottle previously dried at a temperature of 105 ± 2 °C and weighed together with the stopper. Dry the test portion in an oven at 105 ± 2 °C. After 2 h, close the bottle with the stopper, cool it in a desiccator for 20 to 30 min and then reweigh. Just before weighing, slightly open the stopper, then quickly close it again. Repeat the drying several times for 25 min each, until constant mass is obtained.

If, after repeated drying, the test portion increases in mass then accept as final the mass preceding the increase. The difference in the mass of the stoppered bottle with the ore before and after drying shall be accepted as the mass of hygroscopic moisture, in grams, in the test portion.

7 TREATMENT OF RESULTS

7.1 Calculation of hygroscopic moisture

The content of hygroscopic moisture *A*, as a percentage by mass, is calculated from the following formula :

$$A = \frac{m_1 - m_2}{m_3} \times 100$$

where

*m*₁ is the mass, in grams, of the bottle with ore before drying;

*m*₂ is the mass, in grams, of the bottle with ore after drying;

*m*₃ is the mass, in grams, of the test portion.

7.2 General treatment of results

The arithmetical mean of the two results calculated as a percentage by mass as specified in 7.1 shall be accepted as the final result. The difference between the results shall not exceed the permissible tolerance given in 7.3.

1) At present ISO/DIS 2600.

2) In preparation (formerly Annex C to ISO/DIS 2600).

3) At present ISO/DIS 2601.