International Standard 310

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Manganese ores — Determination of hygroscopic moisture content in analytical samples — Gravimetric method

Minerais de manganèse — Détermination de l'humidité des échantillons pour analyse — Méthode gravimétrique

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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 310 was developed by Technical Committee ISO/TC 65, *Manganese and chromium ores*.

This second edition was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 310-1975), which had been approved by the member bodies of the following countries :

Austria	Hungary	Poland
Bulgaria	India	Portugal
Chile	Ireland	Romania
Czechoslovakia	Italy	South Africa, Rep. of
France	Japan	United Kingdom
Germany, F. R.	Netherlands	USSR

No member body had expressed disapproval of the document.

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Manganese ores — Determination of hygroscopic moisture content in analytical samples — Gravimetric method

1 Scope and field of application

This International Standard specifies a method for the determination of the hygroscopic moisture content in analytical samples of manganese ores, intended to be carried out simultaneously with the determination of other constituents of the same analytical sample so that the contents of the other constituents can be calculated on the basis of the absolutely dry ore.

It should be read in conjunction with ISO 4297.

2 References

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

ISO 4296/2, *Manganese ores — Sampling — Part 2 : Preparation of samples.*[1)]

ISO 4297, *Manganese ores and concentrates — Methods of chemical analysis — General instructions.*

3 Principle

Drying to constant mass, in an oven at 105 to 110°C, of a test portion previously dried in air.

4 Apparatus

Ordinary laboratory apparatus and

4.1 Weighing bottle, with stopper.

4.2 Oven, capable of being maintained at 105 to 110 °C.

5 Sample

See ISO 4296/1 and ISO 4296/2.

Use a test sample which has been crushed to a size not exceeding 0,10 mm (checked on a sieve of appropriate size) and air-dried under laboratory conditions.

6 Procedure

6.1 Test portion

Weigh 2 g of the test sample into the weighing bottle (4.1) which has been previously dried in the oven (4.2) at a temperature of 105 to 110 °C and weighed together with its stopper.

6.2 Determination

Place the open weighing bottle containing the test portion (6.1) in the oven (4.2) controlled at 105 to 110 °C. After 2 h, close the bottle with its stopper and leave it to cool in a desiccator for 20 to 30 min. Remove the bottle from the desiccator, slightly open the bottle and quickly close it again, then weigh it.

Repeat the operations of drying (for periods of 30 min), cooling and weighing until the difference between two successive masses does not exceed 0,000 5 g. If, after repeated drying the test portion increases in mass, then accept as final the mass preceding the increase.

7 Expression of results

7.1 Calculation

The hygroscopic moisture content is given, as a percentage by mass, by the formula

$$\frac{(m_1 - m_2) \times 100}{m_0}$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the weighing bottle, its contents and stopper before drying;

m_2 is the mass, in grams, of the weighing bottle, its contents and stopper after drying.

7.2 Permissible tolerances on results of duplicate determinations

Moisture content, % (*m*/*m*)		Permissible tolerance, % (*m*/*m*) (in absolute value)
from	to	
0,10	0,50	0,02
0,50	1,00	0,04
1,00	5,00	0,10
5;00	10,00	0,20

1) At present at the stage of draft.