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Laterite nickel ores - Determination of moisture content of a consignment

红土镍矿 交货批水分含量的测定

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Laterite nickel ores - Determination of moisture content of a consignment

1 Scope

This Standard specifies the determination method of moisture content of a consignment of laterite nickel ores.

This Standard is applicable to the determination of moisture content of a consignment of laterite nickel ores.

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.

YS/T 950, *Methods for sampling and sample preparation of laterite nickel ores in bulk*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 consignment

A certain amount of ores in one delivery. A consignment may consist of a batch, several batches or partial batches of ores.

3.2 gross sample

A sample that consists of all increments and fully represents all quality characteristics of a batch.

3.3 partial sample

A sample that is composed of partial increments required to form a gross sample.

3.4 increment

A certain amount of ores that are obtained in one operation by a sampling device or a sample reduction device.

3.5 sample

Relatively small amount of ores that are representative and are taken from a batch of ores of which their quality characteristics are to be evaluated.

3.6 test portion

A certain amount of material that are taken from test samples (if the test sample is the same as the laboratory sample, take it from the laboratory sample) and used for inspection or observation.

3.7 mass-basis sampling

A sampling method that takes increments at equal mass intervals and tries to make the increment size consistent.

3.8 time-basis sampling

A sampling method that, from a free-fall material flow or from a conveyor, collects increments at equal time intervals; that the amount of each increment is proportional to the material flow of the taken increment.

4 Method summary

In 105°C±5°C air flow, dry the test portion to constant weight. By determining the mass loss of test portion, calculate its moisture content.

5 Instruments and equipment

5.1 Drying pan: stainless-steel or enamel; about 1000g of test portion are placed in the pan and the thickness is about 10mm.

5.2 Blast dryer: equipped with temperature indicator and controller; be able to control the temperature of any point in the cabinet within 105°C±5°C; the air in the cabinet can conduct cycling and replacement, so as to make test portion completely dried without any loss.

5.3 Weighing device: the maximum weighing value is not less than 2000g; the resolution is not greater than 0.1g.

Annex A

(normative)

Determination of moisture content of over-wet or sticky laterite nickel ore consignment

A.1 When the moisture sample is too wet or sticky to sieve, break and divide, it shall pre-dry the moisture sample till it is easy to prepare.

NOTE: It shall carefully distribute the pre-dried test portion, weigh the initial mass of test portion and the mass of pre-dried test portion, so as to ensure the determination precision of pre-dried moisture content.

A.2 Weigh the initial mass of test portion.

A.3 Flatten the test portion to the same thickness. Pre-dry it in the air or in a drying device of which the temperature is not higher than 105°C till it is easy to prepare.

NOTE: The temperature and time selected in the pre-drying stage must not exceed the state when it is easy to re-absorb water in the subsequent processing.

A.4 After pre-drying, re-weigh the mass of test portion.

A.5 The pre-dried moisture content w_p in test portion, expressed in mass fraction, is calculated according to formula (A.1). Keep the result to one digit after the decimal place.

$$w_p = \frac{m'_1 - m'_2}{m'_1} \times 100\% \qquad \cdots\cdots (A.1)$$

Where,

m'_1 - Initial mass of test portion, in grams (g);

m'_2 - Mass of test portion after pre-drying, in grams (g).

A.6 According to the provisions of YS/T 950, use pre-dried test portion to prepare the test portion for moisture determination.

A.7 According to the provisions of 7.2, determine the dry loss of test portion. Then according to the provisions of 8.1, calculate the remaining moisture content of test portion.

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