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Copper, lead and zinc sulfide concentrates — Determination of hygroscopic moisture in the analysis sample — Gravimetric method

Concentrés sulfurés de cuivre, de plomb et de zinc — Détermination de l'humidité hygroscopique dans l'échantillon pour analyse — Méthode gravimétrique

Reference number
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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9599 was prepared by Technical Committee ISO/TC 183, *Copper, lead and zinc ores and concentrates*.

Annex A forms an integral part of this International Standard. Annex B is for information only.

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Copper, lead and zinc sulfide concentrates — Determination of hygroscopic moisture in the analysis sample — Gravimetric method

1 Scope

This International Standard specifies a gravimetric loss-in-mass method for the determination of the hygroscopic moisture content in analysis samples of copper, lead and zinc sulfide concentrates.

The method is applicable to copper, lead and zinc sulfide concentrates free from volatile organic flotation reagents, for example kerosene, and with hygroscopic moisture contents between 0,05 % (m/m) and 2 % (m/m). It is used to correct the analysis results from the equilibrated moisture level to the dry basis.

NOTE 1 The result of the determination of hygroscopic moisture using this International Standard should not be reported as part of the analysis of a concentrate sample. When the bulk moisture content of a commercial shipment of concentrate is required, the method specified [1] should be used. The determination of hygroscopic moisture and the determination of bulk moisture content are connected with each other. In both determinations the same state of dryness has to be achieved, in order to ascertain the correct metal content of a lot.

This method is not applicable to sulfide concentrates which are susceptible to oxidation (see 6.3, note 2). Annex A sets out a modified procedure which can be used in this case.

2 Principle

Drying of a weighed test portion in air in an oven maintained at 105 °C ± 5 °C and calculation of the percentage moisture content from the loss in mass.

3 Reagents

3.1 Desiccant, such as self-indicating silica gel or anhydrous magnesium perchlorate.

WARNING — Exhausted magnesium perchlorate must be disposed of by carefully washing it down the sink with a stream of water.

4 Apparatus

Ordinary laboratory equipment, and

4.1 Analytical balance, sensitive to 0,1 mg.

4.2 Laboratory oven, capable of maintaining a temperature of 105 °C ± 5 °C.

4.3 Weighing vessels, shallow, of glass or silica or corrosion-resistant metal, with externally fitting air-tight covers of approximately 50 mm diameter.

4.4 Flat dish, or **tray**.

5 Sampling and samples

5.1 Laboratory sample

Use a sample of minus 150 µm particle size.

5.2 Preparation of the test sample

Take a sufficient mass of the laboratory sample for the required chemical analysis and moisture determination and transfer to a flat dish or tray (4.4). Spread the sample evenly in a thin layer about 3 mm to 5 mm thick. Cover the dish to protect the sample from dust, allowing a free flow of air across the top of the sample. Allow the test sample to equilibrate with the laboratory atmosphere for 2 h or for long enough to achieve equilibration.