International Standard 6606

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Aluminium ores — Determination of loss of mass at 1 075 °C — Gravimetric method

Minerais alumineux — Détermination de la perte de masse à 1 075 °C — Méthode gravimétrique

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ISO 6606-1986 (E)

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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6606 was prepared by Technical Committee ISO/TC 129, *Aluminium ores.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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0 Introduction

Aluminium ores when heated undergo a loss of mass. At temperatures up to 110 °C the loss is due to hygroscopic moisture. At higher temperatures the loss of mass is due largely to the dissociation of hydroxides and oxyhydroxides of aluminium and iron and also, to a lesser degree, to the dissociation of minor constituents.

The total loss of mass is a function of the temperature and time of heating. There are no conditions at which the loss represents exclusively the water (hygroscopic and combined) in the sample.

The temperature chosen for the test, 1 075 °C, is a compromise between such factors as furnace suitability and the absorption of water by the sample during cooling.

The value obtained for loss on ignition is calculated on the basis of a dried sample.

The test portion is heated initially at 375 ± 25 °C and finally at 1 075 ± 25 °C and the loss of mass determined. The crucible is covered with a loose-fitting lid after the test portion is placed in the crucible and this is left in position throughout all the subsequent operations. The presence of the lid contributes to more reproducible results by preventing the random effects of small pieces of furnace lining falling into the crucible during heating and does not interfere with the maintenance of oxidizing conditions in the crucible.

1 Scope and field of application

This International Standard specifies a gravimetric method for the determination of the loss of mass of analytical samples of aluminium ores when heated to constant mass at 1 075 °C. The method is applicable to all aluminium ores having loss of mass values in the range of 10 to 30 %.

2 Reference

ISO 8557, *Aluminium ores — Determination of hygroscopic moisture of analytical samples — Gravimetric method.*

3 Principle

Heating of a test portion in a tared crucible in a furnace at 375 ± 25 °C for 10 min. Transfer of the covered crucible to a second furnace at 1 075 ± 25 °C and heating to constant mass. Correction of the resultant loss in mass for the original hygroscopic moisture.

4 Apparatus

Ordinary laboratory apparatus and

4.1 Dishes, of inert material of sufficient size to take the required quantity of sample at a layer density of 5 mg/mm^2.

4.2 Platinum crucible, approximately 30 mm top diameter, 20 mm bottom diameter and 35 mm deep, with matching platinum lid.

4.3 Electric furnaces, capable of being controlled at 375 ± 25 °C and at 1 075 ± 25 °C, and having provision for a flow of air through the heated cavity.

4.4 Balance, capable of being read to 0,000 1 g.

4.5 Desiccator, containing either fresh magnesium perchlorate or activated alumina as desiccant.

NOTES

1 Activated alumina should be activated by heating at 300 ± 10 °C overnight.

2 When discarding magnesium perchlorate, flush down the sink using copious quantities of water.

5 Sampling and samples

5.1 Samples

Laboratory samples shall be taken and crushed to pass a 150 µm test sieve, in accordance with the methods specified in the relevant standards.[1)].

1) Where no International Standards exist, the relevant standards shall be the national standards. Two International Standards on this subject are currently in preparation : ISO 6137, *Aluminium ores — Method of sampling,* and ISO 6140, *Aluminium ores — Preparation of samples.*