INTERNATIONAL STANDARD 803

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Aluminium oxide primarily used for the production of aluminium — Determination of loss of mass at 300 °C (conventional moisture)

Oxyde d'aluminium principalement utilisé pour la production de l'aluminium — Détermination de la perte de masse à 300 °C (humidité conventionnelle)

First edition — 1976-09-15

UDC 661.862.22 : 543.71

Ref. No. ISO 803-1976 (E)

Descriptors : aluminium oxide, tests, determination of content, absorbed water, mass loss by heating.

Price based on 2 pages

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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 47 has reviewed ISO Recommendation R 803 and found it technically suitable for transformation. International Standard ISO 803 therefore replaces ISO Recommendation R 803-1968 to which it is technically identical.

ISO Recommendation R 803 was approved by the Member Bodies of the following countries :

Austria	Hungary	Romania
Belgium	India	South Africa, Rep. of
Brazil	Ireland	Spain
Bulgaria	Israel	Sweden
Canada	Italy	Switzerland
Chile	Japan	Turkey
Czechoslovakia	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Netherlands	U.S.A.
France	Norway	U.S.S.R.
Germany	Poland	Yugoslavia

No Member Body expressed disapproval of the Recommendation.

The Member Body of the following country disapproved the transformation of ISO/R 803 into an International Standard :

Egypt, Arab Rep. of

Printed in Switzerland

Aluminium oxide primarily used for the production of aluminium — Determination of loss of mass at 300 °C (conventional moisture)

0 INTRODUCTION

Depending on its degree of calcination, aluminium oxide shows a tendency to readsorb variable quantities of water by a process involving physical forces (residual activity).

The water readsorbed cannot be completely eliminated by simply drying at 105 °C, the temperature usually employed for the determination of moisture. Therefore, it is necessary to use a suitably higher drying temperature. It is accepted that elimination of water is almost complete at 300 °C and this temperature is conventionally adopted.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of loss of mass on drying at 300 °C (conventional moisture) of aluminium oxide primarily used for the production of aluminium.

2 REFERENCES

ISO 802, *Aluminium oxide primarily used for the production of aluminium — Preparation and storage of test samples.*

ISO 2927, *Aluminium oxide primarily used for the production of aluminium — Sampling.*

3 PRINCIPLE

Drying of a test portion at 300 °C for 2 h and determination of loss of mass.

4 APPARATUS

Ordinary laboratory apparatus and

4.1 Desiccator, preferably containing freshly activated alumina or phosphorus(V) oxide (the use of calcium chloride shall be avoided).

4.2 Weighing bottle, squat form, of diameter approximately 45 mm.

4.3 Electric oven, capable of being controlled at 300 ± 10 °C.

5 PROCEDURE

5.1 Test portion

Weigh, to the nearest 0,001 g, approximately 5 g of the crude sample (see 3.2 of ISO 802) in the weighing bottle (4.2), previously dried at 300 ± 10 °C, allowed to cool in the desiccator (4.1) and tared to the nearest 0,000 1 g.

5.2 Determination

Place the uncovered weighing bottle and its lid in the oven (4.3), controlled at 300 ± 10 °C, and heat for 2 h. Remove the weighing bottle and lid from the oven and place in the desiccator (4.1) without covering the weighing bottle completely. After 30 min cooling, cover the weighing bottle and weigh it to the nearest 0,000 1 g.

6 EXPRESSION OF RESULTS

The loss of mass at 300 °C is given, as a percentage by mass, by the formula

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

where

m_0 is the mass, in grams, of the test portion (5.1);

m_1 is the mass, in grams, of the weighing bottle containing the test portion after drying;

m_2 is the mass, in grams, of the weighing bottle containing the test portion before drying.

7 TEST REPORT

The test report shall include the following particulars :

a) the reference of the method used;

b) the results and the method of expression used;

c) any unusual features noted during the determination;

d) any operation not included in this International Standard or in the International Standards to which reference is made, or regarded as optional.

ANNEX

ISO PUBLICATIONS RELATING TO ALUMINIUM OXIDE PRIMARILY USED FOR THE PRODUCTION OF ALUMINIUM

ISO 802 – Preparation and storage of test samples.

ISO 803 – Determination of loss of mass at 300 °C (conventional moisture).

ISO 804 – Preparation of solution for analysis – Method by alkaline fusion.

ISO 805 – Determination of iron content – 1,10-Phenanthroline photometric method.

ISO 806 – Determination of loss of mass at 1 000 and 1 200 °C.

ISO 900 – Determination of titanium content – Diantipyrylmethane photometric method.

ISO 901 – Determination of absolute density – Pyknometer method.

ISO 902 – Measurement of the angle of repose.

ISO 903 – Determination of untamped density.

ISO 1232 – Determination of silica content – Reduced molybdosilicate spectrophotometric method.

ISO 1617 – Determination of sodium content – Flame emission spectrophotometric method.

ISO 1618 – Determination of vanadium content – *N*-Benzoyl-*N*-phenylhydroxylamine photometric method.

ISO 2069 – Determination of calcium content – Flame atomic absorption method.

ISO/R 2070 – Determination of calcium content – Spectrophotometric method using naphthalhydroxamic acid.

ISO 2071 – Determination of zinc content – Flame atomic absorption method.

ISO/R 2072 – Determination of zinc content – PAN photometric method.

ISO 2073 – Preparation of solution for analysis – Method by hydrochloric acid attack under pressure.

ISO 2828 – Determination of fluorine content – Alizarin complexone and lanthanum chloride spectrophotometric method.

ISO 2829 – Determination of phosphorus content – Reduced phosphomolybdate spectrophotometric method.

ISO 2865 – Determination of boron content – Curcumin spectrophotometric method.

ISO 2926 – Particle size analysis – Sieving method.

ISO 2927 – Sampling.

ISO 2961 – Determination of an adsorption index.

ISO 3390 – Determination of manganese content – Flame atomic absorption method.