INTERNATIONAL STANDARD ISO 1594

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Urea for industrial use — Determination of ash

Urée à usage industriel — Détermination des cendres

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ISO 1594-1977 (E)

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 in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 47, *Chemistry*, has reviewed ISO Recommendation R 1594-1970 and found it technically suitable for transformation. International Standard ISO 1594 therefore replaces ISO Recommendation R 1594-1970, to which it is technically identical.

ISO Recommendation R 1594 had been approved by the member bodies of the following countries :

Australia	Hungary	South Africa, Rep. of
Austria	India	Spain
Belgium	Iran	Sweden
Brazil	Israel	Switzerland
Canada	Italy	Thailand
Chile	Netherlands	Turkey
Czechoslovakia	New Zealand	United Kingdom
Egypt, Arab Rep. of	Peru	U.S.S.R.
France	Poland	Yugoslavia
Germany	Portugal	
Greece	Romania	

No member body had expressed disapproval of the Recommendation.

No member body disapproved the transformation of the Recommendation into an International Standard.

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Urea for industrial use — Determination of ash

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the ash of urea for industrial use.

2 PRINCIPLE

Ignition of a test portion at 800 ± 25 °C to constant mass.

3 APPARATUS

Ordinary laboratory apparatus and

3.1 Dish, flat-bottomed, of platinum or silica, about 50 mm diameter and 25 mm high.

3.2 Electric furnace, capable of being controlled at 800 ± 25 °C.

4 PROCEDURE

4.1 Test portion

Weigh, to the nearest 0,1 g, about 100 g of the test sample.

4.2 Determination

Ignite the dish (3.1)* at 800 ± 25 °C, cool in a desiccator and weigh to the nearest 0,000 1 g. Heat it over a small flame under a fume hood. Place a little of the test portion (4.1) in the dish and when it has melted, add the remainder of the test portion in small amounts, waiting after each addition until all the material has melted and partially decomposed.

Transfer the dish containing the partially decomposed material to the furnace (3.2), controlled at about 300 °C, and raise the temperature slowly to 800 ± 25 °C, at such a rate as to avoid loss by spluttering (about 1 h). Continue heating until the residue is completely ignited (about 30 min). Remove the dish from the furnace, allow to cool in a desiccator to ambient temperature and weigh to the nearest 0,000 1 g. Repeat the operations of ignition, cooling and weighing, until the difference between two successive weighings does not exceed 0,000 5 g.

5 EXPRESSION OF RESULTS

The ash, expressed as a percentage by mass is given by the formula

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

where

m_0 is the mass, in grams, of the test portion (4.1);

m_1 is the mass, in grams, of the empty dish;

m_2 is the mass, in grams, of the dish containing the ash.

6 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 regarded as optional.

* If the ash is equal to or less than 0,001 % (*m/m*), or if the ash is to be used for the determination of iron content, use a platinum dish.

ANNEX

ISO PUBLICATIONS RELATING TO UREA FOR INDUSTRIAL USE

ISO 1592 — Determination of nitrogen content — Titrimetric method after distillation.

ISO 1593 — Determination of alkalinity — Titrimetric method.

ISO 1594 — Determination of ash.

ISO/R 1595 — Determination of iron content — 2,2′-Bipyridyl photometric method.

ISO 2749 — Measurement of the pH of a solution of urea of conventional concentration (100 g/l) — Potentiometric method.

ISO 2750 — Measurement of colour in Hazen units (platinum-cobalt scale) of a urea-formaldehyde solution.

ISO 2751 — Determination of the buffer coefficient — Potentiometric method.

ISO 2752 — Measurement of the variation of pH in the presence of formaldehyde — Potentiometric method.

ISO 2753 — Determination of water content — Karl Fischer method.

ISO 2754 — Determination of biuret content — Photometric method.

ISO 4274 — Determination of biuret content — Flame atomic absorption and photometric absorption methods.