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Instant tea in solid form — Determination of total ash

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ISO 7514:1990(E)

Foreword

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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 7514 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

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International Organization for Standardization

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Instant tea in solid form — Determination of total ash

1 Scope

This International Standard specifies a method for the determination of the total ash of instant tea in solid form.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7513:1990, *Instant tea in solid form — Determination of moisture content (loss in mass at 103 °C)*.

ISO 7516:1984, *Instant tea in solid form — Sampling*.

3 Definition

For the purposes of this International Standard, the following definition applies.

total ash: The residue obtained after treatment with hydrochloric acid and incineration at $550\text{ °C} \pm 25\text{ °C}$ under the conditions specified in this International Standard.

4 Principle

Destruction of organic matter by treatment with concentrated hydrochloric acid solution and heating at 550 °C . Weighing of the residue.

5 Reagent

5.1 Hydrochloric acid, concentrated solution ($\rho_{20} = 1,16\text{ g/ml}$ to $1,18\text{ g/ml}$), of recognized analytical grade.

WARNING — Concentrated hydrochloric acid solution is corrosive, has an irritant vapour and causes burns; it shall be handled in accordance with good laboratory practice.

6 Apparatus

Usual laboratory apparatus and, in particular, the following.

6.1 Dish, of approximately 50 ml capacity, made of platinum, porcelain or any other material unaffected by the conditions of the test.

6.2 Furnace, capable of being controlled at $550\text{ °C} \pm 25\text{ °C}$.

6.3 Hot-plate, thermostatically controlled.

6.4 Desiccator, containing an efficient desiccant.

7 Sampling

Sampling shall have been carried out in accordance with ISO 7516.

8 Preparation of the test sample

Thoroughly mix the instant tea sample as received by shaking or inverting the sealed sample container.

9 Procedure

9.1 Preparation of the dish

Ensure that the dish (6.1) is completely clean, and then heat it in the furnace (6.2) at $550\text{ °C} \pm 25\text{ °C}$ for at least 30 min. Cool in the desiccator (6.4). After

cooling to room temperature, weigh to the nearest 0,001 g.

9.2 Test portion

Open the sample container and immediately weigh, to the nearest 0,001 g, about 2 g of the prepared test sample (clause 8) into the prepared dish (9.1). Spread the sample evenly over the base of the dish.

9.3 Determination

Add, drop by drop, to the test portion contained in the dish (9.2), sufficient (approximately 1 ml) of the concentrated hydrochloric acid solution (clause 5) to wet it completely.

Place the dish on the cool hot-plate (6.3), set the control to medium and heat for 30 min. Raise the hot-plate temperature to the highest setting in three successive steps, allowing the test portion to heat at each stage for 30 min. Keep the test portion at the highest setting until no fuming has occurred for at least 5 min.

Place the dish containing the test portion in the furnace (6.2) at $550\text{ °C} \pm 25\text{ °C}$ for 16 h. Remove, leave to cool and add a few drops of water to moisten and disperse the ash. Evaporate to dryness on the hot-plate (6.3) as before, and then return to the furnace (6.2) for a further 30 min. Remove, cool to room temperature in the desiccator (6.4) and weigh to the nearest 0,001 g. Determine the mass of the total ash to the nearest 0,001 g.

NOTE 1 Instant tea ashed under these conditions should give a grey/white ash.

9.4 Number of determinations

Carry out two determinations on the same test sample.

10 Expression of results

The total ash, expressed as a percentage by mass of the sample on a dry basis, is given by the formula

$$\frac{m_1}{m_0} \times 100 \times \frac{100}{RS}$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the total ash;

RS is the dry matter content, expressed as a percentage by mass, of the test sample. It is equal to 100 minus the moisture content determined using the method specified in ISO 7513.

Take as the result the arithmetic mean of the two determinations, provided that the requirement for repeatability (see 11.1) is satisfied.

11 Precision

11.1 Repeatability

For a total ash content within the range of 10 % (m/m) to 22 % (m/m), the difference between the values of two determinations, carried out in rapid succession (or simultaneously) by the same operator using the same apparatus on the same test sample shall not exceed 0,4 % (absolute value).

11.2 Reproducibility

For a total ash content within the range of 10 % (m/m) to 22 % (m/m), the difference between the values of the final result obtained by two laboratories using this method for the analysis of the same laboratory sample, shall not exceed 1,2 % (absolute value).

12 Test report

The test report shall specify the method used and the result obtained. It shall also mention all operating details not specified in this International Standard, or regarded as optional, together with details of any incidents which may have influenced the result.

The test report shall include all information necessary for the complete identification of the sample.

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