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Instant tea in solid form — Determination of moisture content (loss in mass at 103 °C)

*Thé soluble sous forme solide — Détermination de la teneur en eau
(perte de masse à 103 °C)*



Reference number
ISO 7513:1990(E)

Foreword

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Introduction

The loss in mass of instant tea in solid form when it is heated in air at a temperature near 100 °C is conventionally designated the "moisture content", the contribution to this loss in mass made by small amounts of other volatile constituents being regarded as negligible for practical purposes.

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Instant tea in solid form — Determination of moisture content (loss in mass at 103 °C)

1 Scope

This International Standard specifies a method for the determination of the moisture content of instant tea in solid form as received (loss in mass at 103 °C).

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

3 Principle

Heating a test portion of the instant tea in an air oven at 103 °C for 2 h and weighing of the dried test portion.

NOTES

1 The loss in mass will consist mostly of loss in water content and small amounts of non-water volatile substances that will vaporize under the test conditions used.

2 A drying period of 2 h is used because this time interval gives results which agree best with those obtained using the Karl Fischer method of determining the moisture content of instant tea.

4 Apparatus

Usual laboratory apparatus and, in particular, the following.

4.1 **Oven**, constant-temperature and fan-assisted, capable of being controlled at $103\text{ °C} \pm 2\text{ °C}$.

4.2 **Weighing bottle or dish**, with a close-fitting lid, made of aluminium or glass, approximately 70 mm in diameter and 20 mm in height.

4.3 **Desiccator**, containing an efficient desiccant.

5 Sampling

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

NOTE 3 The moisture content of samples is likely to increase on exposure to the atmosphere. It is therefore important to carry out the determination as soon as possible after sampling.

6 Preparation of the test sample

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

7 Procedure

7.1 Preparation of the weighing bottle or dish

Remove the lid from the weighing bottle or dish (4.2) and heat both for 1 h in the oven (4.1) controlled at $103\text{ °C} \pm 2\text{ °C}$. Cool in the desiccator (4.3). After cooling to room temperature, fit the lid and weigh to the nearest 0,001 g.

7.2 Test portion

Open the sample container and immediately weigh, to the nearest 0,001 g, about 4 g of the prepared test sample (clause 6) into the prepared weighing bottle or dish (7.1), with the lid placed alongside.

7.3 Determination

Heat the weighing bottle or dish and contents, with the lid removed and placed alongside, in the oven (4.1) at $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 2 h. The oven door shall not be opened during the heating period.

Remove from the oven and immediately replace the lid. Transfer to the desiccator (4.3), remove the lid (leaving the lid in the desiccator) and allow to cool in the closed desiccator for at least 30 min. Remove from the desiccator, replace the lid and weigh to the nearest 0,001 g. Determine the mass of the dried test portion to the nearest 0,001 g.

7.4 Number of determinations

Carry out two determinations on the same test sample.

8 Expression of results

The moisture content or loss in mass at $103\text{ }^{\circ}\text{C}$, expressed as a percentage by mass of the sample, is given by the formula

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

where

- m_0 is the initial mass, in grams, of the test portion (7.2);
- m_1 is the mass, in grams, of the dried test portion (7.3).

Take as the result the arithmetic mean of the two determinations, provided that the requirement for repeatability (see 9.1) is satisfied.

9 Precision

9.1 Repeatability

For a moisture content within the range of 3 % (m/m) to 4 % (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 0,2 % (absolute value).

9.2 Reproducibility

For a moisture content within the range of 3 % (m/m) to 4 % (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 0,8 % (absolute value).

10 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.