International Standard 6673

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Green coffee — Determination of loss in mass at 105 °C

Café vert — Détermination de la perte de masse à 105 °C

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Foreword

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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.

International Standard ISO 6673 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in May 1982.

It has been approved by the member bodies of the following countries:

Australia	Iraq	Romania
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Brazil	Kenya	Spain
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Iran	Portugal	Yugoslavia

The member body of the following country expressed disapproval of the document on technical grounds:

France

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Green coffee — Determination of loss in mass at 105 °C

1 Scope and field of application

This International Standard specifies a method for the determination of the loss in mass at 105 °C of green coffee.

It is applicable to decaffeinated and non-decaffeinated green coffee as defined in ISO 3509.

This method of determining the loss in mass can be considered, by convention, as a method for determining the water content and can be used as such by agreement between the interested parties, but it gives results which are lower, by about 1,0 %, than those obtained with the methods described in ISO 1447 and ISO 1446 (this latter method serves only as a reference method for calibrating methods of determining the water content).

2 References

ISO 1446, *Green coffee — Determination of moisture content (Basic reference method).*

ISO 1447, *Green coffee — Determination of moisture content (Routine method).*

ISO 3509, *Coffee and its products — Vocabulary.*

ISO 4072, *Green coffee in bags — Sampling.*

3 Definition

loss in mass at 105 °C: Principally water and small quantities of volatile matter which are vaporized under the conditions specified in this International Standard, and expressed as a percentage by mass.

4 Principle

Heating a test portion at 105 °C for 16 h at atmospheric pressure.

5 Apparatus

Usual laboratory apparatus, and in particular

5.1 Oven, electrically heated, fitted with a system of forced ventilation and capable of being controlled at 105 ± 1 °C.

5.2 Dish, made of aluminium, glass or stainless steel with a close-fitting lid. The diameter should be approximately 90 mm and the height 20 to 30 mm.

5.3 Analytical balance.

5.4 Desiccator, containing an efficient desiccant, for example anhydrous calcium sulphate or silica gel.

6 Sampling

See ISO 4072.

It is important to proceed as rapidly as possible when samples are exposed to the atmosphere, in order to prevent any pick up or loss of moisture.

7 Procedure

7.1 Preparation of the dish

Dry the dish (5.2) and its lid for 1 h in the oven (5.1) controlled at 105 ± 1 °C.

Remove the dish and its lid from the oven and allow to cool to room temperature in the desiccator (5.4).

Weigh the dish and its lid to the nearest 0,1 mg.

7.2 Test portion

Place a test portion of approximately 10 g into the prepared dish (see 7.1) and spread the beans uniformly over the bottom of the dish.

Cover the dish with its lid and weigh to the nearest 0,1 mg.

NOTE — If performing a series of tests, prepare dishes as described in 7.1 and place the covered and weighed dishes in the desiccator in order to avoid any pick up or loss of moisture.

7.3 Determination

Place the dish containing the test portion, with the lid removed but alongside or beneath the dish, in the oven (5.1), controlled at 105 ± 1 °C, and dry for 16 ± 0,5 h.

Fit the lid on the dish and place it in the desiccator (5.4). Allow to cool to room temperature and then weigh to the nearest 0,1 mg.

7.4 Number of determinations

Carry out two determinations on the same test sample.

8 Expression of results

The loss in mass at 105 °C, expressed as a percentage by mass, is equal to

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

where

m_0 is the mass, in grams, of the dish and lid (see 7.1);

m_1 is the mass, in grams, of the dish, test portion and lid before drying (see 7.2);

m_2 is the mass, in grams, of the dish, test portion and lid after drying (see 7.3).

Take as the result the arithmetic mean of the two determinations (see 7.4).

9 Precision

An inter-laboratory test, carried out at the international level, in which 14 laboratories, each performing two determinations, participated, gave the statistical information (evaluated in accordance with ISO 5725[1]) summarized in the table.

10 Test report

The test report shall show the method used and the result obtained. It shall also mention any operating details not specified in this International Standard, or regarded as optional, as well as any circumstances that may have influenced the result.

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

Table

Results expressed as percentages by mass

Sample	A	B	C	D	E
Number of laboratories retained after eliminating outliers	13	13	13	13	13
Mean	8,50	9,11	9,14	11,10	11,40
Standard deviation of repeatability (s_r)	0,09	0,04	0,06	0,09	0,12
Coefficient of variation of repeatability	1,1 %	0,4 %	0,7 %	0,8 %	1,1 %
Repeatability (2,83 × s_r)	0,25	0,11	0,17	0,25	0,34
Standard deviation of reproducibility (s_R)	0,21	0,42	0,33	0,19	0,22
Coefficient of variation of reproducibility	2,5 %	4,6 %	3,6 %	1,7 %	1,9 %
Reproducibility (2,83 × s_R)	0,59	1,19	0,93	0,54	0,62

1) ISO 5725, *Precision of test methods — Determination of repeatability and reproducibility by inter-laboratory tests.*