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Green coffee — Preparation of samples for use in sensory analysis

Café vert — Préparation d'un échantillon en vue de l'analyse sensorielle
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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 6668 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

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International Organization for Standardization

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Green coffee — Preparation of samples for use in sensory analysis

1 Scope

This International Standard specifies a method for the roasting of green coffee and the preparation from the ground coffee sample of a beverage to be used in sensory analysis.

NOTES

1 The sensory analysis which will be carried out following this preparation may be used to determine the acceptance or rejection of a shipment of coffee depending on the agreements between the parties concerned. Generally, the sample will require a light roast for assessment of defects, and a medium roast for assessment of flavour and colour (see 8.1).

2 A beverage prepared in accordance with this International Standard may be used not only for purposes of quality control, but also for purposes of comparative assessment of different samples, in which case an identical procedure (see clause 8) should be followed for each of the samples.

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 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

ISO 4072:1982, *Green coffee in bags — Sampling*.

3 Definition

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

beverage: Solution prepared by the extraction of soluble substances from roasted and ground coffee using freshly boiled water, under the conditions specified in this International Standard.

4 Principle

Roasting and grinding of a sample of green coffee. Infusion of the roasted and ground coffee in freshly boiled water in a cup.

5 Reagent

5.1 Water, complying with grade 3 of ISO 3696:1987, free from chlorine or other foreign flavours and with a medium hardness.

NOTE 3 The water should contain approximately 15 mmol calcium carbonate (CaCO_3) per litre to 25 mmol calcium carbonate (CaCO_3) per litre.

6 Apparatus

Usual laboratory apparatus and, in particular, the following.

6.1 Batch roaster, equipped with a cooling system in which air is forced through a perforated plate, capable of roasting up to 500 g of green coffee in 12 min max. to a medium brown colour.

6.2 Dial thermometer, suitable for use in the roaster (6.1) for measuring coffee bean temperatures up to 240 °C.

6.3 Balance, having an accuracy of approximately 0,1 g.

6.4 Laboratory grinder, set to grind, in not more than 1 min, approximately 100 g of roasted coffee beans to a grind having the size distribution shown in table 1.

Table 1 — Grind characteristics

| Sieving results ¹⁾ | Percentage of grind | | |
|----------------------------------|---------------------|---------|---------|
| | target | maximum | minimum |
| Held on 600 µm | 70 | 75 | 60 |
| Through 600 µm Held on 425 µm | 20 | 2) | 2) |
| Through 425 µm | 10 | 15 | 5 |

1) For sieve sizes, see the R 40/3 series of ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*.
2) Not specified.

Perform a test sieving at the start of each working day.

Ground coffee that has been used for size analysis shall not be used to prepare a beverage.

6.5 Cup, made of porcelain or glass, of 150 ml to 350 ml capacity, chosen according to the quantity of water required for subsequent assessment.

The cups shall be clean and odour-free and shall not be cracked or chipped.

6.6 Heating apparatus, clean and odour-free, suitable for boiling water.

6.7 Graduated cylinder, made of glass, of suitable capacity, or **scoop** of suitable known volume.

7 Sampling

Sampling shall have been carried out in accordance with in ISO 4072.

8 Procedure

8.1 Roasting

Place the thermometer (6.2) in the batch roaster (6.1) and preheat the roaster by roasting one or two samples of beans (not necessarily taken from the laboratory sample).

NOTE 4 Preheating is not necessary if the roaster has been in continuous use throughout the day.

Place 100 g to 300 g of the laboratory sample (clause 7) in the batch roaster and carefully roast

the beans until they attain a light to medium brown colour.

The roasting time shall not exceed 12 min and should not be less than 5 min.

Using the thermometer (6.2), check the temperature of the coffee beans during roasting.

NOTE 5 A temperature between 200 °C and 240 °C is that normally used, but a particular temperature or a smaller range may be used by agreement between the purchaser and the supplier.

8.2 Cooling

On completion of roasting, empty the beans onto the perforated plate and force air through the bed of hot beans.

NOTE 6 The beans should be cool to the touch (approximately 30 °C) within 5 min.

8.3 Grinding and preparation of the test sample

Grind approximately 50 g of the cooled roasted beans (8.2) in the laboratory grinder (6.4). Discard the grind.

Place the remainder of the roasted beans in the laboratory grinder and grind.

Proceed with the preparation of the beverage a maximum of 90 min after completion of the grinding operation.

8.4 Test portion

According to the volume of water required to be used for the preparation of the beverage (see 6.5), using the balance (6.3), weigh to the nearest 0,1 g an amount of the test sample obtained in 8.3 corresponding preferably to a ratio of $(7,0 \pm 0,1)$ g of coffee per 100 ml of water, although another coffee to water ratio may be used by agreement between the purchaser and the supplier.

8.5 Preparation of the beverage

8.5.1 Place the test portion (8.4) in the cup (6.5).

NOTE 7 Warming of the cup whilst boiling the water (see 8.5.2) may be desirable or necessary to minimize cooling of the boiled water.

8.5.2 Heat the water, using the heating apparatus (6.6), to boiling point and, using the preheated graduated cylinder or scoop (6.7) to measure the volume required, pour it into the cup containing the test portion.

8.5.3 Allow the infusion to steep for approximately 5 min to permit the majority of the grounds to settle out after degassing. Stir the contents gently to aid the settling of the grounds to the bottom of the cup.

8.5.4 Skim the remaining grounds from the surface of the beverage and discard them.

8.5.5 Allow the beverage to cool to a temperature not greater than 55 °C.

NOTES

8 The temperature of the first tasting will normally be between 50 °C and 55 °C. Further tastings may be carried out as the temperature of the beverage decreases.

9 Two or three beverages may be prepared from the same test sample (8.3) in order to evaluate possible variation.

9 Test report

The test report shall specify the method and the roasting temperature and time used. 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 beverage.

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

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