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Pšenična moka in pšenični zdrob durum - Določevanje nečistoč živalskega izvora

Wheat flour and durum wheat semolina -- Determination of impurities of animal origin

Farines de blé tendre et semoules de blé dur -- Détermination des impuretés d'origine animale

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INTERNATIONAL
STANDARD

ISO
11050

Second edition
2020-04

**Wheat flour and durum wheat
semolina — Determination of
impurities of animal origin**

*Farines de blé tendre et semoules de blé dur — Détermination des
impuretés d'origine animale*

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ISO 11050:2020(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*.

This second edition cancels and replaces the first edition (ISO 11050:1993), which has been technically revised. The main changes compared with the previous edition are as follows:

- the Scope has been widened;
- the protocol has been improved to make it easier;
- the figures have been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Wheat flour and durum wheat semolina — Determination of impurities of animal origin

1 Scope

This document specifies a method for determining the content of impurities of animal origin in wheat flours, with or without additives and having an ash yield not exceeding a mass fraction of 0,75 %, and in durum wheat semolinas.

This method permits the separation and quantification of contamination of animal origin, such as insects at all stages of their development and their fragments, rodent hairs and their fragments, and mites.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

impurity of animal origin

matter of animal origin [larvae, nymphs or adults of *insects* (3.10) and their fragments, rodent hairs and their fragments, *mites* (3.3)] separated from the product under the conditions specified in this document

3.2

abdomen

rear part of the body of an *insect* (3.10), excluding the head and thorax, commonly with eight or more segments when complete

3.3

mite

very small arthropod belonging to the class Arachnida, often living in large numbers

3.4

appendice

distinctly differentiated prolongation of the body of an arthropod

EXAMPLE Legs, wings, antennae, *urogomphi* (3.16).

3.5

cephalic capsule

head capsule

sclerous part of an exuvia that once contained the head of a larva

ISO 11050:2020(E)**3.6****caterpillar**

larvae of *Lepidoptera* spp.

Note 1 to entry: Butterfly or moth is the adult stage and chrysalis is the pupal stage.

3.7**scale**

bristle (3.13) that has evolved into a flat structure resembling a fish scale and that covers the parts of the body of certain *insects* (3.10), in particular the wings of *Lepidoptera* spp.

3.8**wing case**

elytron

hardened front wing of *Coleoptera* spp.

Note 1 to entry: It is used as a fixed wing in flight and as protective cover for the membranous hind wing.

3.9**false leg**

proleg

fleshy extension of the lower part of the *abdomen* (3.2) of some larvae, sometimes with a crown of fine hooks (crochets) of chitin

Note 1 to entry: These help with attachment to the substrate, and in movement. Lepidopterous larvae have at least two pairs of false legs, towards the rear of the body.

3.10**insect**

class of animals within the phylum Arthropoda, some of which are recognized pests of stored foodstuffs

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3.11**mandible**

toughened (sclerotized) mouthpart of *insects* (3.10)

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Note 1 to entry: It is used for the dilaceration or grinding of food.

3.12**pericarp**

external envelope of seeds that forms the bran after the grain has been crushed and the flour separated

3.13**bristle**

fine but stiff hair of any length present on the cuticle of *insects* (3.10)

Note 1 to entry: Sensory hairs are called “setae”.

3.14**stage**

state of development of an *insect* (3.10) or *mite* (3.3)

EXAMPLE Egg, larva, nymph, pupa, adult.

3.15**juvenile stage**

pre-adult *stage* (3.14) of *insects* (3.10)

EXAMPLE Egg, larva, nymph, pupa.

Note 1 to entry: This term is most often applied to the active stages of larva and nymph.

3.16**urogomphi**

pointed extensions of the cuticle of the final abdominal segment of some insect larvae

Note 1 to entry: They are common, and sometimes diagnostic, features of many *Coleoptera* spp.

Note 2 to entry: The abdominal extensions of a cockroach are called “cerci”.

4 Principle

Hydrolysis of a test portion with a solution of hydrochloric acid at boiling point. Concentration of the insoluble particles (impurities other than those of animal origin may be present) at a water/oil interface. Separation by filtration on a filter paper, microscopic examination and counting under reflected light of the impurities of animal origin.

5 Reagents

Only use reagents of a recognized analytical grade and demineralized water or water of equivalent purity.

5.1 Ethanol, a volume fraction of 95 %.

5.2 Ethanol solution, a volume fraction of 50 %.

5.3 Ethanol/glycerol, 1 + 1 mixture by volume.

5.4 Hydrochloric acid solution, concentrated at 35 % to 37 %.

5.5 Paraffin oil (known as “Vaseline oil”) fluid, having a viscosity not exceeding 60 mPa·s at 20 °C.

5.6 Liquid detergent, non-foaming.

EXAMPLE Extran, Biodeck 4, Decon 90.¹⁾

5.7 Liquid detergent, a volume fraction of 1 % aqueous solution of the detergent (5.6) in a washing bottle.

5.8 Dearomatized white spirit (possible use).

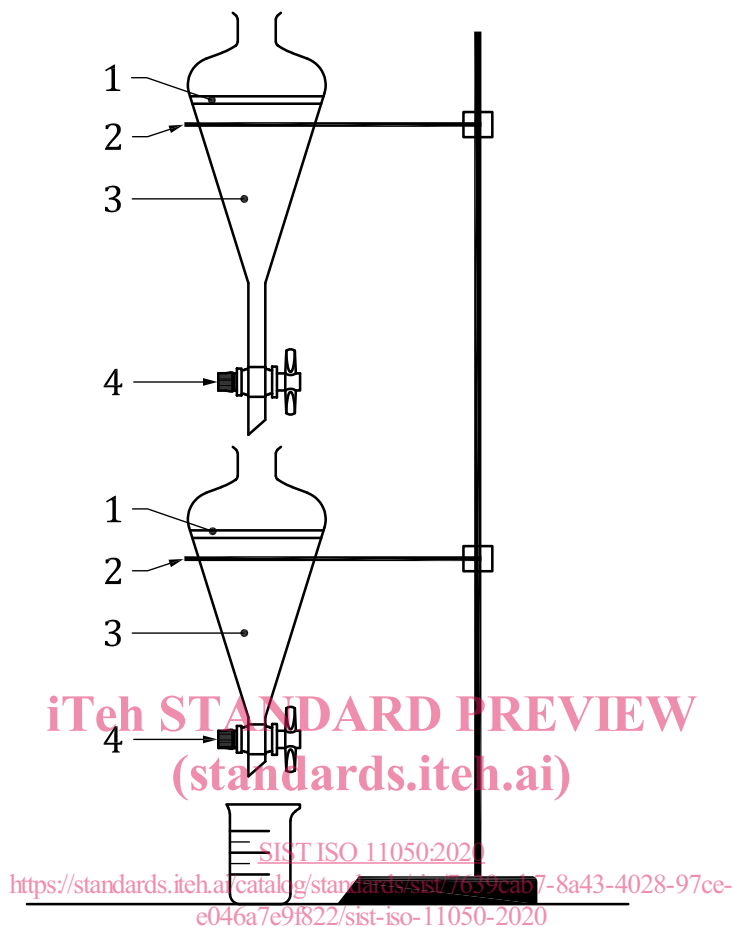
6 Apparatus

Usual laboratory apparatus and, in particular, the following.

1) These are examples of suitable products available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of these products.

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6.1 Separating funnels, conical, of 1 000 ml capacity, fitted with a non-lubricated polytetrafluoroethylene (PTFE) tap. See the recommended set-up shown in [Figure 1](#).

**Key**

- | | | | |
|---|-------------------------|---|-----------------------|
| 1 | light hydrocarbon phase | 3 | “heavy” aqueous phase |
| 2 | support ring | 4 | PTFE tap |

Figure 1 — Separation apparatus

6.2 Tall-form beaker, of at least 800 ml capacity, fitted with a watch glass made of Pyrex®²⁾ or PFTE and of appropriate dimensions to serve as a lid.

6.3 Crystallizing dish or pan, of at least 5 l capacity and of a height slightly less than that of the beaker (6.2), suitable for use as a cooling bath.

6.4 Graduated cylinders, of 25 ml, 50 ml and 500 ml capacity.

6.5 Washing bottles, with a flexible tube.

2) Pyrex® is the trademark of a product registered by Corning Inc. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

6.6 Filter paper³⁾, ash free, with rapid filtration characteristics, of 90 mm diameter, corresponding to that of the filtration unit (6.7), on which fine parallel lines are drawn, spaced 5 mm apart, using a lead pencil.

6.7 Filtration unit, of the Büchner funnel type, removable, suitable for accommodating the filter paper (6.6), and fitted with a conical adapter bung for connection to the filtration flask (6.15).

6.8 Analytical balance, for precision weighing to within 0,1 g.

6.9 Optical microscope or stereoscopic microscope, known as a “binocular magnifying glass”, capable of producing magnifications close to $\times 25$ and $\times 50$, of very high optical quality, used in conjunction with:

- a) **eyepieces**, producing a magnification of $\times 15$ or $\times 20$, thus enabling a total maximum magnification of the object being observed of $\times 75$ or $\times 80$ (depending on the model); and, possibly,
- b) a **micrometer eyepiece**, to measure the dimensions of any impurities with better precision.

6.10 Petri dish, made of plastic or glass, with a diameter of 90 mm or 100 mm.

6.11 Fine needle, made of steel, mounted in needle-holding chuck.

6.12 Plastic stirring rod or glass agitator, fitted with a rubber or plastic protective end.

6.13 Magnetic stirrer/heater, thermostatically controlled, enabling water to be brought to boiling point.

6.14 Spring clips or special flexible clips, for holding the filter paper (6.6).

6.15 Filtration flask, of 1 l capacity, capable of being connected preferably to the vacuum pump (6.17) or else to a water suction pump (6.17).

6.16 Dropper.

6.17 Vacuum pump, enabling a residual pressure of below 1 000 Pa (10 mbar) to be achieved or, if this is not available, a **water suction pump**.

NOTE The duration of filtration is increased considerably if a water suction pump is used.

6.18 Temperature-adjustable oven, capable of being maintained at 37 °C to 40 °C, which may be used to dry the filters.

7 Sampling

For the use of this test method, it is essential that all equipment used for sampling is thoroughly cleaned between each sampling operation.

It is strongly recommended that users of this document ascertain, where possible, that these requirements are met during the sampling procedure.

Sampling is not part of the method specified in this document. A recommended sampling method is given in ISO 24333.

3) Whatman® Ashless, Grade 41 Filtration Paper is an example of a suitable filter paper available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.