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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

Reference number
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Foreword

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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).

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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.

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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

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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

3.11
mandible
toughened (sclerotized) mouthpart of *insects* (3.10)

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.

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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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