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# International Standard



# 6639/3

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## **Cereals and pulses — Determination of hidden insect infestation — Part 3: Reference method**

*Céréales et légumineuses — Détermination de l'infestation cachée par les insectes — Partie 3: Méthode de référence*

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## 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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6639/3 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

# Cereals and pulses — Determination of hidden insect infestation — Part 3: Reference method

## 0 Introduction

This International Standard describes methods of determining hidden insect infestation in cereals and pulses. It consists of the following parts:

*Part 1: General principles.*

*Part 2: Sampling.*

*Part 3: Reference method.*

*Part 4: Rapid methods.*

## 1 Scope and field of application

This part of ISO 6639 specifies the reference method for determining the nature and number of hidden insects in a sample of cereals or pulses. Its aim is to count all the individuals, at every stage of life, of every insect species that normally feeds and develops within cereals and pulses.

The method is slow because it allows each insect to complete its developmental cycle and to emerge as an adult from the grain before it is removed. It can be used reliably for species that normally feed within grains, but not for species that occasionally feed in holes or cracks in grains. These may be shaken from the grains or be induced to leave them by the disturbance of handling at any stage of the life cycle and some are likely to be killed in the process. The numbers of such species will therefore be underestimated.

## 2 References

ISO 712, *Cereals and cereal products — Determination of moisture content (Routine reference method)*.

ISO 5223, *Test sieves for cereals*.

## 3 Definitions

See ISO 6693/1.

## 4 Principle

Maintaining test samples at a controlled temperature and relative humidity such that the greatest possible proportion of the insects present in the sample when collected can develop to the adult stage. Removal of insects that emerge from the grains, identification and counting, at close intervals, to enable the number initially present to be identified.

## 5 Apparatus

Usual laboratory apparatus, and in particular:

**5.1 Airtight containers**, for storage of samples prior to the determination of moisture content (see ISO 712).

**5.2 Balance**, accurate to 1 g and capable of weighing at least 300 g.

**5.3 Transparent containers**, preferably made of glass or plastic, of a size capable of holding up to 300 g of the sample to be tested, in a layer having a depth not exceeding 50 mm.

**5.4 Closures**, to allow exchange of air, but to prevent insects and mites from entering or leaving the containers (5.3).

NOTE — Filter papers sealed in place with paraffin wax have been found to be suitable.

**5.5 Sieves**, of suitable aperture sizes to retain the grain but to allow individual insects to pass.

NOTE — For cereals, a sieve of aperture size 2 to 2,5 mm should be suitable, but for pulses a larger aperture size would be necessary to remove some Bruchid beetles. It is desirable for the sieve to have a deep bottom pan to collect the insects removed (see ISO 5223).

**5.6 Shallow trays**, preferably white enamel, of dimensions about 450 mm × 300 mm, with a rim about 10 to 20 mm deep, on which large samples can be spread, or **transparent Petri dishes**, of diameter about 200 mm, for smaller samples.