

INTERNATIONAL STANDARD

ISO
542

Second edition
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Oilseeds — Sampling

Graines oléagineuses — Échantillonnage



Reference number
ISO 542:1990(E)

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 542 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

This second edition cancels and replaces the first edition (ISO 542:1980), of which it constitutes a technical revision.

Annex A of this International Standard is for information only.

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International Organization for Standardization

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Introduction

Most oilseeds are marketed on the basis of the result of analysis of the samples, and disputes are invariably settled by reference to the samples, so that careless or inaccurate sampling could lead to misunderstanding, delay and unwarranted financial adjustments.

Correct sampling is a difficult process and one that requires the most careful attention. Emphasis cannot therefore be too strongly laid on the necessity of obtaining a representative sample of oilseeds for analysis.

The procedures given in this International Standard are recognized as good practice and it is strongly recommended that they be followed whenever practicable.

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Oilseeds — Sampling

1 Scope

This International Standard specifies methods of sampling oilseeds.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 664:1990, *Oilseeds — Reduction of laboratory sample to test sample*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 consignment: The quantity of oilseeds dispatched or received at one time and covered by a particular contract or shipping document. It may be composed of one or more lots or parts of a lot.

3.2 lot: A stated quantity of the consignment, of mass not exceeding 500 t, presumed to be of uniform characteristics, and which will allow the quality to be assessed.

3.3 increment: A small quantity of oilseeds taken at one time from a single position in the lot.

A series of increments is taken from different parts of the lot, so that, when they are bulked, they are representative of the lot.

3.4 bulk sample: The quantity of oilseeds obtained by combining and blending the increments taken from any one particular lot.

3.5 laboratory sample: Representative quantity of oilseeds obtained by division of the bulk sample and intended for analysis or other examination.

4 General

4.1 Samples shall be fully representative of the lots from which they are taken. For this purpose, each consignment shall be divided, actually or notionally, into lots of mass not exceeding 500 t and a number of increments shall be taken from each lot and carefully mixed to give a bulk sample from which laboratory samples are obtained by successive division.

4.2 Special care is necessary to ensure that all sampling apparatus is clean, dry, free from foreign odours and made from material which will not contaminate the oilseeds.

Sampling shall be carried out in such a manner as to protect the samples, the sampling instruments and the container in which the samples are placed from adventitious contamination such as rain, dust, etc.

Material adhering to the outside of the sampling instrument shall be removed before the contents are discharged.

4.3 All sampling operations shall be carried out over a sufficiently short period of time so as to avoid any alteration in the composition of the samples. If one of the sampling stages will require too long a period of time, the samples or intermediate samples shall be preserved in airtight containers.

5 Apparatus

NOTE 1 Examples of sampling and division apparatus are illustrated in annex A. Many different types and variations of apparatus are available, and the dimensions and designs given in the figures are included solely as a guide.

The apparatus required for sampling and division falls under the following headings, examples being given in each case.

5.1 Apparatus for sampling from bags: sack-type spears or triers, cylindrical samplers, conical samplers and hand-scoops.

5.2 Apparatus for sampling products in bulk: shovels, hand-scoops, cylindrical samplers, conical samplers, mechanical samplers and other apparatus for taking small periodical increments from a flow of oilseeds.

5.3 Apparatus for mixing and dividing: dividing instruments, shovels and quartering irons.

6 Time and place of sampling and limitation of the size of lot

6.1 General

Whether the consignment is in bulk or in bags, sampling is normally carried out during, and at the place of, loading into or discharge from the ship, barge, wagon or lorry or at the time of entry into or exit from the silo or warehouse, as agreed between the parties concerned. Each lot shall be of mass 500 t or part thereof. Special requirements for bulk transfer are given in 6.2.

6.2 Bulk transfer

It is generally advisable to use the following procedures in the case of the bulk transfer of oilseeds from a ship or barge.

6.2.1 Transfer to lorries and wagons

The increments should be taken either from the flow of product (preferred method) during loading or discharge (particularly for tanker-wagons where internal sampling is not possible), or in the lorry or wagon, as soon as possible after loading, by sampling at at least five different positions according to the size of the lorry or wagon (see 7.2.2.3), for the purpose of providing one bulk sample per 500 t lot or part thereof.

6.2.2 Transfer to barges

The increments should be selected during loading, by sampling from each hold throughout the duration of loading, for the purpose of providing one bulk sample per 500 t lot or part thereof.

6.2.3 Transfer to silos or warehouses

The increments should be taken from conveyor belts taking into account the rate of movement of these belts, or preferably by means of an automatic sampler on the transfer circuit, again taking into account the rate of movement, for the purpose of providing one bulk sample per 500 t lot or part thereof.

7 Method of taking samples

7.1 General

Sampling shall be carried out by sampling superintendents appointed by the parties concerned.

As the composition of a lot is seldom, if ever, homogeneous, even in the case of undamaged lots, it is necessary to take a sufficient number of increments to provide a representative bulk sample. Parts of lots which are damaged by sea water or otherwise damaged in transit or out of condition, as well as loose¹⁾ material and sweepings which have been recovered, shall be sampled separately from the sound material. Each type of damaged material shall be assessed by mass, sampled and separated from the sound material.

7.2 Taking of increments

According to circumstances, the increments shall be taken from products in bulk or in bags by means of the sampling apparatus mentioned in 5.1 and 5.2, used in accordance with 7.2.1 and 7.2.2.

7.2.1 Products in bags

Unless otherwise specified in the contract or unless the practice at a port requires otherwise, increments shall be taken from 2 % of the bags forming the lot, with a minimum of five bags.

If the bags are open, the increments may be taken using cylindrical samplers, conical samplers or other appropriate instruments, preferably after the bags have been emptied.

If the bags (for example jute bags) are closed, the increments may be taken using sack-type spears or triers.

7.2.2 Products in bulk

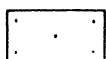
7.2.2.1 When sampling takes place while the product is in motion, which is the preferred method, increments shall be taken across the whole section of the flow, perpendicular to the direction of flow, and at time intervals depending on the rate of flow. If automatic instruments are used, they shall have a

1) This term is used to designate material which has leaked from its original container, but is not unduly contaminated.

slot opening which is at least three times the size of the largest seeds.

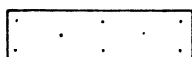
7.2.2.2 When bulk material is sampled in holds during discharge, the increments shall be taken from as many places as possible, excluding the run, and at intervals determined by the rate of discharge.

7.2.2.3 When sampling takes place from laden wagons or lorries, the increments shall be taken at three levels at least (owing to the fact that layering may occur, particularly in vehicles in motion) with a cylindrical sampler or conical sampler, depending on the product, and at the following points:



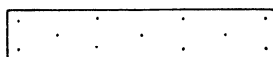
Wagons or lorries up to 15 t:

Five sampling points (middle and approximately 500 mm from sides)



Wagons from 15 t to 30 t:

Eight sampling points



Wagons from 30 t to 50 t:

Eleven sampling points

If the type of wagon or lorry does not allow samples to be taken in this manner, the method of sampling shall be as described for products in motion, which, generally, shall be preferred.

7.2.2.4 If sampling takes place from weigh hoppers, the increments shall be taken by means of cylindrical samplers, shovels or mechanical samplers, in accordance with the practice of the port.

7.2.2.5 The procedure for silos or warehouses is necessarily dependent on local conditions.

7.2.3 Laboratory samples

The bulk sample shall be mixed and divided to obtain the required number of laboratory samples by use of the apparatus mentioned in 5.3. The number of laboratory samples for analysis and arbitration shall be specified in the contract or otherwise agreed between buyer and seller.

For some seeds (e.g. groundnuts in shell) it is advisable to sieve the bulk sample before dividing it and then to add the fines to the laboratory samples in the correct proportion. This is to ensure that the samples contain the same percentage of fines.

8 Sizes of samples

The sizes of samples given in table 1 are usually suitable. Larger or smaller samples may be required in some cases, according to the tests to be carried out.

Whatever the size of the bulk sample, it shall be representative of the lot.

Table 1 — Size of samples of oilseeds

Nature of product	Increment kg	Bulk sample kg	Laboratory sample kg
Copra	1	200	5
Medium-size and large seeds (see ISO 664)	0,5	100	between 2,5 and 5
Small seeds (see ISO 664)	0,2	50	between 1 and 2

9 Packing and labelling of samples

9.1 Packing of samples

Laboratory samples shall be packed in rigid, airtight and moisture-tight containers fitted with airtight and moisture-tight closures. The containers shall be completely filled and the closures shall be sealed to avoid any change in the original moisture content of the sample.

9.2 Labelling of samples

9.2.1 If paper labels are used, their quality and size shall be suitable for the purpose. The eyelet hole in the label shall be reinforced.

9.2.2 Each label shall bear at least the following information:

- ship or road vehicle;
- from;
- to;
- date arrived;
- quantity;
- bulk/bags;

- g) goods;
- h) identification mark or lot number;
- i) number and date of bill of lading or contract;
- j) date of sampling;
- k) place and point of sampling;
- l) sampled by;
- m) name of organization responsible for terms of contract.

The information recorded on the label shall be permanent.

9.2.3 Labels for samples of damaged material shall also indicate the nature of the damage and the proportion or tonnage so affected.

10 Dispatch of samples

Laboratory samples shall be dispatched as soon as possible, and only in exceptional circumstances more than 48 h after sampling has been completed, non-business days excluded.

11 Sampling report

The sampling report shall make reference to this International Standard and shall indicate, in addition to the information necessary for the identification of the sample, the condition of the oilseeds sampled, including signs of insect, mite or rodent infestation visible either in the silo or warehouse or during the operations carried out in the ship or other carrier.

NOTE 2 Such infestation is not always readily apparent in the sample, except on close inspection or sieving.

The report shall also refer to any modifications to the technique described in this International Standard, and all the circumstances that may have influenced sampling.

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Annex A (informative)

Examples of apparatus for sampling and division

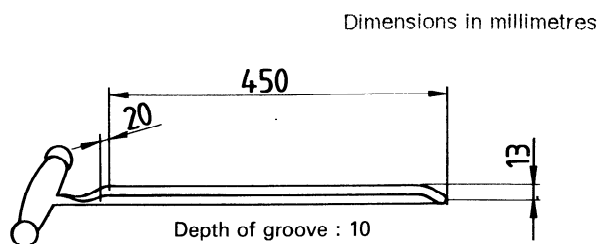


Figure A.1 -- Sampling spear (open trier)

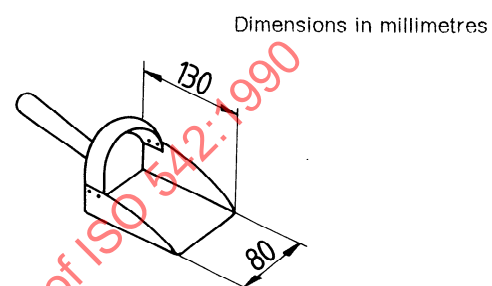


Figure A.2 — Hand-scoop

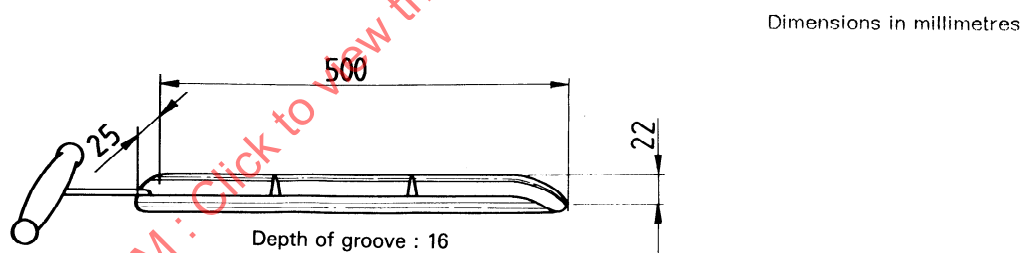


Figure A.3 — Divided sampling spear (open trier)

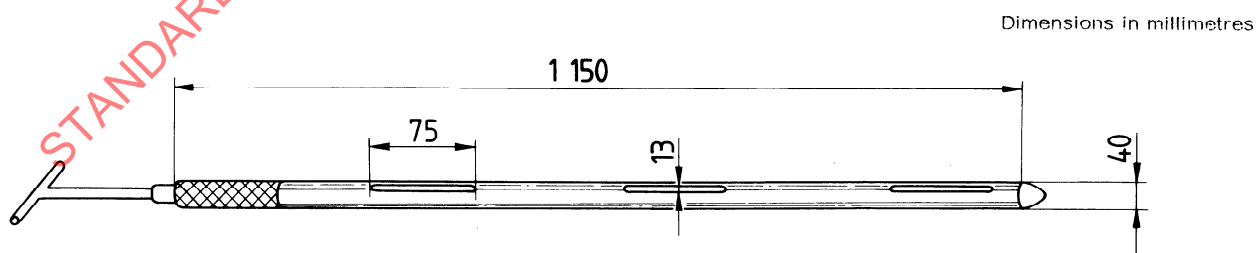


Figure A.4 — Cylindrical sampler (divided bulk probe)