INTERNATIONAL STANDARD

ISO 6497

First edition
2002-11-15

Animal feeding stuffs — Sampling

Aliments des animaux — Échantillonnage

Reference number
ISO 6497:2002(E)

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Printed in Switzerland

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6497 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 10, *Animal feeding stuffs*.

Annex A of this International Standard is for information only.

Animal feeding stuffs — Sampling

1 Scope

This International Standard specifies methods of sampling animal feeding stuffs, including fish feed, for quality control for commercial, technical and legal purposes.

It is not applicable to pet foods. Nor are the methods intended for sampling for the purpose of microbiological examination. Conditions of, and requirements for, sampling are specified separately for feeding stuffs of different physical natures.

For certain categories of animal feeding stuff, specific methods of sampling are specified in other International Standards. A list of these can be found in the bibliography. When sampling the products specified, it is these methods which shall be used.

Methods of sampling for the determination of substances likely to be non-uniformly distributed are described in Annex A.

2 Terms and definitions

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

2.1
consignment
a specified quantity of feeding stuff on offer, dispatched or received at one time

NOTE It may consist of one or more lots (see 2.2).

2.2
lot
an identified quantity of a consignment having characteristics presumed to be uniform

NOTE The uniformity of the characteristics may be due, for example, to the fact that the products are supplied by a single producer always using the same production process, where production is stable and the individual characteristics follow a normal distribution or a close approximation to a normal distribution (note that special circumstances can give rise to subdivisions in the distribution). Consequently, the term “lot” means an “inspection lot” in sampling, i.e. a quantity of material or a collection of items (a population) from which a sample is to be drawn and inspected. It may therefore differ from a collection of items referred to as a lot in the shipment context, for example.

2.3
increment
a quantity of material taken at one time from a single point in a lot

2.4
bulk sample
a quantity of material obtained by combining and mixing all the increments taken from the same lot

NOTE A collection of distinct and identifiable increments intended for separate investigation may be denoted the “gross sample”.

2.5
reduced sample
a representative part of the bulk sample, obtained by a process of successive division or reduction in such a manner that the mass or volume approximates to that of the laboratory samples

2.6
laboratory sample
a sample representative of the quality and condition of the lot, obtained by division of the reduced sample and intended for analysis or other examination

NOTE For each sample taken, three or four laboratory samples are normally produced. One of these should be submitted for testing and at least one stored for reference purposes. If more than four laboratory samples are required, the quantity of the reduced sample will have to be increased so that the minimum quantity requirement for all laboratory samples can be met.

3 General principles

3.1 Representative sampling

The purpose of representative sampling is to obtain a small fraction from a lot in such a way that a determination of any particular characteristic of this fraction will represent the mean value of the characteristic of the lot.

The lot shall be sampled by repeatedly taking increments at various single positions in the lot. These increments shall be combined by mixing to form a bulk sample from which representative laboratory samples shall be prepared by dividing.

3.2 Selective sampling

If portions of the material to be sampled show a noticeable difference in quality from the rest of the material, such portions shall be separated from the material and treated as a separate lot. In such cases, mention shall be made of this fact in the sampling report.

If it is not possible to divide the material into separate lots, the material shall be sampled as one lot, and the sampling report shall indicate this fact. The proportion of the product suspected to be different shall be given, if possible.

3.3 Statistical considerations

Acceptance sampling is the usual method of sampling for animal feeding stuffs. For sampling by attributes, there is a theoretical sampling plan based on a binomial distribution, but, for practical purposes, this plan has been simplified to a square-root relationship between the lot size and the number of increments.

NOTE 1 With bulk products, sample variances can be expected to be acceptably uniform if, for lots up to 2,5 tonnes, at least seven increments are taken and, for lots between 2,5 tonnes and 80 tonnes, the number of increments taken is at least equal to $\sqrt{20m}$, where m is the mass, in tonnes, of the lot. If the lot exceeds 80 tonnes, the square-root relationship is still applicable, but the risk of making incorrect decisions on the basis of the samples increases. However, this can be the subject of agreement between the interested parties.

NOTE 2 The application of the square-root relationship is somewhat different for the sampling of packaged animal feeding stuffs, for liquids and semi-liquids, for blocks and licks and for roughages, because the sample size may vary.

4 Sampling personnel

Sampling shall be carried out by persons suitably trained and experienced in the sampling of animal feeding stuffs and who are particularly aware of the hazards and dangers the product and the sampling process may involve.

5 Identification and general inspection of the lot prior to sampling

Positively identify the lot in question before any samples are taken, and, for this purpose, compare, as appropriate, the number of items in the lot, the mass of the lot or the volume of the lot, and the markings on containers and labels, with the entries on the relevant documents.

Note for inclusion in the sampling report any features, relevant to the taking of representative samples, concerning the condition of the lot and of the surroundings.

Separate damaged portions of the lot and/or, if the lot is unduly heterogeneous, divide it into portions with more similar properties. Treat each of these portions as separate lots.

6 Sampling equipment

6.1 General

Select a sampling device appropriate to the particle size of the product, the size of the sample to be taken, the size of the container, the physical state of the product, etc.

6.2 Apparatus for taking increments from solid products

6.2.1 Examples of apparatus for manual sampling

6.2.1.1 Sampling from bulk

Examples are an ordinary shovel, hand-scoop, cylindrical sampler (for example sampling spear, stick-trier or sleeve-trier) and conical sampler. The sampling spear may comprise one or more compartments.

Sampling of products in motion at relatively low flow rates can be performed manually.

6.2.1.2 Sampling from bags or other packages

Examples are a hand-scoop, sack-type sampling spear or trier, cylindrical sampler, conical sampler and riffle divider.

6.2.2 Examples of apparatus for mechanical sampling

Approved apparatus for taking increments periodically from a flow of product (for example pneumatic apparatus) may be used.

Sampling of products in motion at high flow rates can be performed by machines with manual control.

6.3 Apparatus for taking increments from liquid or semi-liquid products by manual or mechanical means

Examples are a stirrer plunger, agitator, sampling bottle, sampling tube, zone sampler and dipper, of an appropriate size.

6.4 Cleanliness

When taking, reducing, storing and handling samples, special care shall be taken to ensure that the properties of the samples and the sampled lot are not affected. The sampling equipment shall be clean, dry and free from foreign odours. The material from which the sampling apparatus is made shall not influence the quality of the sample. Apparatus shall be cleaned thoroughly between samples. This is particularly important when sampling feed with high oil content. Sampling personnel shall wear disposable gloves and dispose of them between samples so as not to contaminate the subsequent sample.

7 Sample containers

7.1 General requirements

The sample containers shall ensure that the characteristics of the sample are maintained until testing is carried out. They shall be of such size that they are almost completely filled by the sample. They shall be capable of being sealed in such a way that it will not be possible to open and reseal them without this being detected.

7.2 Cleanliness

The sample containers shall be clean, dry and free from foreign odours. The material from which the sample containers are made shall not influence the quality of the sample.

7.3 Sample containers for solid products

Sample containers for solid products and the lids of such containers shall be made of waterproof and greaseproof material (for example glass, stainless steel, tin or a suitable plastics material), shall be wide-mouthed and preferably cylindrical, and shall be of a capacity appropriate to the size of the sample they are intended to contain. Suitable plastic bags are also acceptable. The containers shall be capable of secure and waterproof closure. If the samples are to be used for the determination of photosensitive substances, like vitamins A, D3, folic acid, B2 and C and slightly sensitive substances, like vitamins K3, B6 and B12, the containers shall be opaque.

7.4 Sample containers for liquid and semi-liquid products

Such containers shall be made of a suitable material (preferably glass or plastics material), of the appropriate capacity, capable of airtight closure and preferably dark-coloured. Note the requirements in 7.3 for samples which are to be used for the determination of photosensitive substances.

8 Procedure

8.1 Sampling location

If possible, sampling shall be carried out at places protected from adventitious contamination such as damp air, dust or soot. If possible, samples shall be taken during loading or unloading. If sampling cannot be carried out whilst the material is in motion, the lot to be sampled shall be so arranged as to make each part accessible, so that representative laboratory samples are obtained.

8.2 Classification of products for the purpose of sampling

For sampling purposes, animal feeding stuffs are classified as follows:

a) solid feeding stuffs — grains, seeds, pulses and pellets;

b) solid feeding stuffs — meals and powders;

c) roughages;

d) licks and blocks;

e) liquid or semi-liquid feeding stuffs.

8.3 Sample size

It is necessary to take a sufficient number of increments in order to obtain a sample representative of the lot sampled. The number of increments and their size are determined, in accordance with the sampling plan, by the size of the lot and the practicability of taking samples. The size of any particular lot will depend on a number of factors (see 2.2). This International Standard has been drawn up for lot sizes up to a maximum of 500 tonnes.

NOTE The sampling procedure described is equally valid for quantities larger than the prescribed maximum lot size provided that the maximum number of increments given in the various tables is ignored, the number of increments being determined by the square-root formula given in the appropriate part of the procedure, and the minimum bulk sample sizes increased proportionately. This does not prevent a large consignment being divided into smaller lots and each lot sampled in accordance with this International Standard.

The size of the bulk sample is determined by the size of the increments, taken in accordance with a definite sampling plan, although minimum amounts, dependent on the lot size, are specified. The size of each laboratory sample shall not be less than three times the mass, or volume, of the test portion required. In addition, the size of each laboratory sample shall be sufficient to carry out testing.

8.4 Sampling of grains, seeds, pulses and pellets

8.4.1 Examples of products

Cereals: maize (corn), wheat, barley, oats, rice, sorghum, etc.

Oilseeds: sunflower seed, groundnut kernel, rapeseed, soybean, cottonseed, linseed, etc.

Pulses: beans, etc.

Pellets: feeding stuffs produced in pellet form.

8.4.2 Lot size

For products in packages, the lot shall comprise the number of packages present or the number that make up the maximum lot size.

For products in bulk containers, the lot shall consist of the number of containers present or the minimum number of containers that contain the maximum lot size. Where one container by itself exceeds the maximum lot size, the contents of that container shall comprise the lot.

For products in bulk, the lot shall comprise the amount present unless it is physically divided into a number of portions, in which case each portion shall be treated as if it were one bulk container.

8.4.3 Number of increments to be taken

For products in bulk or in bulk containers, the minimum number of randomly selected increments to be taken shall be as specified in Table 1.

Table 1

Mass m of the lot tonnes	**Minimum number of increments**
up to 2,5	7
more than 2,5	$\sqrt{20m}$ up to a maximum of 100

When products are in packages, the minimum number of randomly selected packages from which sample increments are taken shall be as follows:

a) For packages up to 1 kg: see Table 2.

Table 2

Number n of packages in the lot	Minimum number of packages to be sampled
1 to 6	Each package
7 to 24	6
more than 24	$\sqrt{2n}$ up to a maximum of 100

b) For packages of more than 1 kg: see Table 3.

Table 3

Number n of packages in the lot	Minimum number of packages to be sampled
1 to 4	each package
5 to 16	4
more than 16	$\sqrt{2n}$ up to a maximum of 100

8.4.4 Sample size

See Table 4.

Table 4

Size of lot tonnes	Minimum mass of bulk sample kg	Minimum mass of reduced sample[a] kg	Minimum mass of laboratory sample kg
1	4	2	0,5
over 1 to 5	8	2	0,5
over 5 to 50	16	2	0,5
over 50 to 100	32	2	0,5
over 100 to 500	64	2	0,5

[a] This is the minimum quantity required for up to four laboratory samples (see note to 2.6).

8.4.5 Procedure

8.4.5.1 General

Sampling shall be carried out as indicated in 9.1. Sampling of products carried in bulk containers shall, wherever possible, be carried out during loading or unloading. Similarly, if the product is to be transferred directly to a silo or warehouse, sampling shall, wherever possible, be carried out during transfer.

8.4.5.2 Sampling from bulk

When sampling from bulk, e.g. a pile or heap, determine the number of increments to be taken, taking into account the minimum number of increments specified in 8.4.3. Select the place from which each increment is to be taken randomly, choosing each place by reference to both surface area and depth so that all parts of the lot have an equal chance of selection.

When sampling from a product in motion, take the increments through the whole cross-section of the flow, either manually or mechanically, at time intervals depending on the flow rate, as follows. Use the flow rate and lot size to determine the time for the lot to pass the sampling point. Divide this time by the number of increments to be taken, giving time bands. Take an increment randomly in each of these time bands.

8.4.5.3 Sampling from packages

Select randomly from the lot the number of packages from which increments are to be taken, taking into account the minimum number of increments specified in 8.4.3. Open the packages and take the increments using equipment as described in 6.2.1.2.

If the increments are to be taken from closed packages, sack-type spears or triers can be used. Sack-type spears can be used either horizontally or vertically but shall be driven diagonally into the package. The increments taken from the packages may be taken from the whole depth or at three levels: top, middle and bottom.

After taking the increments from the package, close the hole on the package wall.

If it is not possible or convenient to use the above method (or not advisable bearing in mind the non-homogeneity of non-pelleted mixtures), empty the contents of the package on to a clean, dry surface, mix thoroughly and take one shovelful as an increment.

8.4.6 Preparation of laboratory samples

Take and prepare all samples as quickly as possible to avoid changes in the quality of the samples and to prevent them becoming contaminated. Combine the increments and mix thoroughly to form the bulk sample. The bulk sample may be placed in a container or bag that has no adverse effect on the quality of the sample.

Reduce the bulk sample either manually (for example by the random-cup method or by quartering) or mechanically (for example using a conical divider, centrifugal divider or multiple-slot divider). Repeat this process, mixing each time, to give a reduced sample of suitable size, but not less than 2 kg.

Thoroughly mix the reduced sample and divide it into three or four laboratory samples, as required, of approximately equal size (minimum 0,5 kg). Place each laboratory sample in an appropriate container. See also the note to 2.6.

8.5 Sampling of meals and powders

8.5.1 Examples of products

These products are processed (for example ground or milled, and possibly also dried) derivatives of the feeding stuffs listed below, of particle size much smaller than the unprocessed product, either alone or in mixtures:

a) meals and powders of vegetable origin, made of

   1) whole grains or some part of the kernel,

   2) unprocessed, processed or extracted oilseeds,

   3) unprocessed, processed or extracted pulses,

   4) dried alfalfa or grass,

   5) vegetable protein concentrates,

6) starch,

7) yeast;

b) meals and powders of animal origin, made of

1) fish,

2) blood, meat, meat and bone, or bone,

3) milk or whey;

c) premixtures;

d) mineral supplements;

e) compound feeds;

f) feed additives:

1) organic compounds — vitamins and vitamin preparations, drugs and drug preparations, anti-oxidants, amino acids, and aroma and flavour materials,

2) inorganic compounds.

8.5.2 Lot size

Irrespective of the size of the consignment, the lot size shall not exceed 100 tonnes.

8.5.3 Minimum number of increments to be taken

See 8.4.3.

8.5.4 Sample size

See 8.4.4.

8.5.5 Precautions to be taken when sampling meals

It is important to take precautions against explosions when sampling dry meals because of their dusty consistency.

There is a greater risk of microbiological damage to, and spoilage of, meals because they are processed. During the pre-examination of the lot, therefore, pay special attention to the identification of any unsound parts of the lot. Separate these from the rest of the lot and take separate samples from them.

The tendency of meals to cake (due to moisture, for instance) sometimes requires the addition of anti-caking additives. The occurrence of caking may then require extra operations or separate sampling.

Segregation may occur to such an extent that it will be necessary to sample the different fractions separately.

The procedure for taking increments from meals in bulk or in packages is as specified in 8.4.5.

8.5.6 Preparation of laboratory samples

See 8.4.6.

8.6 Sampling of roughages

8.6.1 Examples of products

— fresh green roughages (alfalfa, grass, maize, etc.);

— ensiled green roughages (alfalfa, grass, maize, etc.);

— dried green roughages (alfalfa, grass, etc.);

— straw;

— fodder beet;

— dried sugar beet pulp;

— roots and tubers (potatoes, etc.).

8.6.2 Lot size

Due to numerous genetic and environmental factors, and depending on the state of preservation, the properties of a lot of roughage may show significant variations, particularly with larger lots.

Therefore adequate uniformity in a larger lot can only be achieved with difficulty, and no specific details can be given regarding lot size.

8.6.3 Number of increments to be taken

Roughages are stored and transported mostly in bulk. The minimum number of increments shall be as specified in Table 5.

Table 5

Mass m of the lot tonnes	**Minimum number of increments**
up to 5	10
more than 5	$\sqrt{40m}$ up to a maximum of 50 increments

8.6.4 Sample size

See Table 6.

Table 6

Type of product	**Minimum mass of bulk sample** kg	**Minimum mass of reduced sample**[a] kg	**Minimum mass of laboratory sample** kg
Fresh green roughages, beets, roots, tubers, ensiled roughages	16	4	1
Dried roughages, beets, tubers	8	4	1
[a] This is the minimum quantity required for up to four laboratory samples (see note to 2.6).			

8.6.5 Procedure

8.6.5.1 General

For roughages, the most practical sampling method is often to take the increments by hand.

8.6.5.2 Sampling in the field

A suitable procedure for sampling from standing products or harvested products remaining in the field can be found in ISO 10381-6 relating to soil quality (see the bibliography).

8.6.5.3 Sampling from stacks, piles, silos or silage heaps

When sampling from stacks, piles, silos or silage heaps, determine the number of increments to be taken, taking into account the minimum number of increments specified in 8.4.3. Take the increments randomly throughout the material and ensure that all layers are equally represented. Take safety precautions when sampling from tower silos. Wherever possible, carry out sampling whilst the material is in motion.

8.6.5.4 Sampling bales

When sampling products in bales, select the minimum required number (see 8.4.3) of bales randomly and take one increment from each, through the whole cross-section.

8.6.5.5 Sampling from products in motion

When sampling from products in motion, take the increments as described in 8.4.5.2.

8.6.5.6 Preparation of laboratory samples

Preparation of the laboratory samples shall be carried out as quickly as possible in order to avoid deterioration of the sample.

After combining the increments, mix the bulk sample as far as practicable. With roughages, it may be necessary to cut the bulk sample into smaller pieces. Reduce bulk samples of green roughages and dry roughages gradually by quartering to give a reduced sample of suitable size, but not less than 4 kg. For products in large pieces, reduce the bulk sample by halving the number of pieces in the bulk sample, selecting the pieces at random during halving. Unless it is necessary, avoid breaking the pieces of the bulk sample during the reduction stage.

Mix the reduced sample as far as practicable and divide it into three or four laboratory samples, as required, of approximately equal size (minimum 0,5 kg). Place each laboratory sample in an appropriate container. See also the note to 2.6.

8.7 Sampling of licks and blocks

8.7.1 Examples of products

Examples are mineral licks, blocks and cakes.

8.7.2 Lot size

The lot size for these products shall not be more than 10 tonnes.

8.7.3 Number of increments to be taken

The minimum number of randomly selected units from which increments are to be taken shall be as specified in Table 7.

Table 7

Number n of units in the lot	Minimum number of units to be sampled
up to 25	4
26 to 100	7
more than 100	$\sqrt{n}$ up to a maximum of 40 increments

8.7.4 Sample size

See Table 8.

Table 8

Minimum mass of bulk sample	Minimum mass of reduced sample[a]	Minimum mass of laboratory sample
kg	kg	kg
4	2	0,5
[a] This is the minimum quantity required for up to four laboratory samples (see note to 2.6).		

8.7.5 Procedure

Take the number of increments required, taking into account the minimum number of increments specified in 8.7.3.

If the lick or block is very small, the whole lick or block may be taken as an increment.

8.7.6 Preparation of laboratory samples

If large pieces of the product or whole licks/blocks are taken as increments, break these up.

Combine the increments to give a bulk sample, mix thoroughly and reduce to give a reduced sample of suitable size, but not less than 2 kg.

Thoroughly mix the reduced sample and divide it into three or four laboratory samples, as required, of approximately equal size (minimum 0,5 kg). Place each laboratory sample in an appropriate container. See also the note to 2.6.

8.8 Sampling of liquids

8.8.1 Examples of products

Products of low viscosity — products easily stirred and mixed.

Products of high viscosity — products not easily stirred or mixed.

8.8.2 Lot size

The lot shall comprise 60 tonnes or 60 000 litres, unless a single container holds more than 10 tonnes or 10 000 litres, in which case the container shall constitute the lot.

8.8.3 Number of increments to be taken

The minimum number of randomly selected increments shall be as follows:

a) For products in bulk: see Table 9.

Table 9

Mass/volume of the lot		Minimum number of increments
tonnes	litres	
up to 2,5	2,500	4
more than 2,5	2,500	7

If it is not possible to make the liquid homogeneous, increase the number of increments to maintain the representativity of the laboratory samples.

b) For products in containers not exceeding 200 litres, the minimum number of randomly selected containers from which the increments are to be drawn shall be:

1) Containers not exceeding 1 litre: see Table 10.

Table 10

Number n of containers in the lot	Minimum number of containers to be sampled
up to 16	4
more than 16	$\sqrt{n}$ up to a maximum of 50 increments

2) Containers exceeding 1 litre: see Table 11.

Table 11

Number n of containers in the lot	Minimum number of containers to be sampled
1 to 4	Each unit
5 to 16	4
more than 16	$\sqrt{n}$ up to a maximum of 50 increments

8.8.4 Sample size

See Table 12.

Table 12

Minimum mass or volume of bulk sample		Minimum mass or volume of reduced sample[a]		Minimum mass or volume of laboratory sample	
kg	litres	kg	litres	kg	litres
8	8	2	2	0,5	0,5

[a] This is the minimum quantity required for up to four laboratory samples (see note to 2.6).

8.8.5 Procedure

8.8.5.1 Sampling from tanks

If the product in the tank has settled, and might be heterogeneous, mix it by stirring. Take the increments from the mixed lot through the top opening of the tank using appropriate apparatus. If mixing cannot be carried out prior to sampling, take the increments during filling or discharge of the liquid. If, in such cases, sampling cannot be performed while the lot is in motion, take the increments throughout the lot to ensure that representative laboratory samples are obtained.

Provided that the nature of the product permits, heating can, in certain cases, improve the uniformity prior to sampling.

8.8.5.2 Sampling from barrels

Prior to taking increments, mix the contents of each barrel selected randomly for sampling. Mixing can be performed by plunging, agitation or stirring. Take the increments from the mixed material.

If prior mixing is not possible, take at least two increments from each barrel from different directions and from at least two zones (top and bottom).

8.8.5.3 Sampling from small containers

Select containers randomly. Take increments after mixing the contents of each container selected, as necessary. If the container is very small, the entire contents may be taken as the increment.

8.8.6 Preparation of laboratory samples

Collect the increments in an appropriate container to form a bulk sample. Mix the bulk sample thoroughly and remove the amount of material required to constitute a reduced sample of suitable size, but not less than 2 kg or 2 litres.

For products which are not easy to mix, use the following reduction procedure:

— Divide the bulk sample into two halves. Label one half part A and the other part B.

— Take part A and divide it, in turn, into two halves. Label one of these part C and the other part D.

— Repeat with part B, labelling one half part E and the other part F.

— By a random method, select either part C or part D.

— By a random method, select either part E or part F.

— Combine the selected parts.

— Mix as thoroughly as possible.

— Repeat this process as necessary to give a reduced sample of between 2 kg and 4 kg (or between 2 litres and 4 litres).

— Mix the reduced sample as thoroughly as possible and divide it into three or four laboratory samples, as required, of approximately equal size (minimum 0,5 kg or 0,5 litres).

— Place each laboratory sample in an appropriate container.

If more than four laboratory samples are required, the minimum quantity for the reduced sample will have to be increased accordingly.

8.9 Sampling of semi-liquid (semi-solid) products

8.9.1 Examples of products

Examples are fats, fatty compounds, hydrogenated oils, soapstocks.

8.9.2 Lot size

See 8.8.2.

8.9.3 Number of increments to be taken

See 8.8.3.

8.9.4 Sample size

See 8.8.4.

8.9.5 Procedure

8.9.5.1 General

Wherever possible, the material shall be sampled in the liquid state.

8.9.5.2 Sampling in the liquid state

See 8.8.5.

8.9.5.3 Sampling in the semi-liquid (semi-solid) state

In the case of products transported or stored in tanks, use a suitable sampling apparatus capable of reaching diagonally down to the bottom of the tank. Take increments from at least three depths. If possible, take the increments over the whole cross-section of the tank.

Plug any holes left in the product after sampling with a piece of the product.

If mixing is not possible, or if it is not possible to perform sampling whilst the material is in motion, take increments at intervals of approximately 300 mm in depth, taking a quantity for each individual increment which is proportional to the cross-sectional area of the container at that particular depth.

8.9.6 Preparation of laboratory samples

Thoroughly mix the bulk sample. Where possible, place the bulk sample in a vessel capable of being heated and mix the melted material using a convenient method. If heating has a deleterious effect on the sample, mix the bulk sample by some other suitable means.

Reduce the bulk sample as necessary and prepare the laboratory samples as described in 8.8.6.

9 Packing, sealing and marking of samples and sample containers

9.1 Filling and sealing of sample containers

Each laboratory-sample container shall be closed and sealed by the person taking the sample in such a manner that the container cannot be opened without breaking the seal; alternatively the container may be placed in a stout envelope or in a linen, cotton or plastic bag, and this further receptacle closed and sealed in such a manner that the contents cannot be removed without breaking the seal of the receptacle.

A label shall be attached to the container or receptacle containing the laboratory sample and sealed in such a manner that it cannot be removed without the seal being broken. The label shall be marked with the particulars given in 9.2, which shall be visible without the seal being broken.

The container or receptacle may also be sealed, and the label signed or initialled, by the custodian of the material sampled or a person acting on the custodian's behalf.

9.2 Marking of laboratory samples

The label shall be marked with the following particulars:

a) the name of the sampler and the sampling organization to which he/she belongs;

b) the identification mark given by the sampler or sampling organization to the sample;

c) the place, date and time of sampling;

d) the designation of the material (name, grade, specification);

e) the composition of the material, where declared;

f) the identification code, batch number, reference number or consignment identification for the material sampled.

9.3 Dispatch of laboratory samples

For each lot, at least one laboratory sample shall be sent as quickly as possible to the agreed analytical laboratory, together with the information necessary for the analysis. It may be necessary to dispatch products which will change with time in an adequately refridgerated condition, or possibly even in a frozen condition.

9.4 Storage of laboratory samples

Laboratory samples shall be stored in such way as to prevent any change in composition. Any not submitted to a laboratory shall be stored for an agreed length of time, usually 6 months from the date of sampling.

10 Sampling report

A report shall be completed by the sampler as soon as possible after each sample has been taken. Wherever possible, copies of the labels attached to the packages or containers or a copy of the consignment note shall be attached to the report.

The sampling report shall contain at least the following information:

a) the information required on the laboratory-sample label (see 9.2);

b) the name and address of the custodian of the material sampled;

c) the name of the manufacturer, importer, packer and/or seller;

d) the size, by mass or volume, of the lot plus, if applicable:

   1) the purpose of sampling,

   2) the number of laboratory samples from the consignment submitted to the agreed laboratory for analysis,

   3) details of any deviation from the sampling procedure,

   4) any other relevant remarks.

Annex A
(informative)

Feeding stuffs containing undesirable substances which are likely to be non-uniformly distributed, including mycotoxins, castor-oil seed husks and poisonous seeds

A.1 Number of bulk samples to be taken

A.1.1 General

When samples are to be taken to determine the presence of undesirable substances likely to be distributed non-uniformly, a number of separate bulk samples should be taken from the lot and separate laboratory samples obtained from these bulk samples. The minimum number of bulk samples per lot should be as specified in A.1.2 or A.1.3.

A.1.2 Sampling from packages or other containers

See Table A.1.

Table A.1

Number of packages/containers in the lot	Minimum number of separate bulk samples
1 to 16	1
17 to 200	2
201 to 800	3
more than 800	4

A.1.3 Sampling from bulk

See Table A.2.

Table A.2

Mass m of the lot tonnes	Minimum number of separate bulk samples
up to 1	1
1 to 10	2
more than 10 to 40	3
more than 40	4

A.2 Number of increments to be taken

A.2.1 Determine the number of increments to be taken in accordance with clause 8, and divide this number by the required number of bulk samples determined in A.1.1. If necessary, round the resultant figure up to the nearest whole number.

A.2.2 Divide the lot into a number of approximately equal parts equal to the required number of bulk samples determined in A.1.1.

A.2.3 Take randomly, in the appropriate manner, the number of increments determined in A.2.1 from each of the parts produced in A.2.2.

A.2.4 Combine the increments from each part to give the required number of bulk samples. Do not mix the increments taken from one part with the increments from another. Prepare laboratory samples from each bulk sample by mixing, reduction and division as specified in clause 8 for the type of product being sampled.

Bibliography

[1] ISO 542:1990, *Oilseeds — Sampling*

[2] ISO 707:1997, *Milk and milk products — Guidance on sampling*

[3] ISO 3951:1989, *Sampling procedures and charts for inspection by variables for percent nonconforming*

[4] ISO 5500:1986, *Oilseed residues — Sampling*

[5] ISO 5555:2001, *Animal and vegetable fats and oils — Sampling*

[6] ISO 6644:2002 *Flowing cereals and milled cereal products — Automatic sampling by mechanical means*

[7] ISO 7002:1986, *Agricultural food products — Layout for a standard method of sampling from a lot*

[8] ISO 10381-6:1993, *Soil quality — Sampling — Part 6: Guidance on the collection, handling and storage of soil for the assessment of aerobic microbial processes in the laboratory*

[9] ISO 13690:1999, *Cereals, pulses and milled products — Sampling of static batches*

ICS 65.120

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