SLOVENSKI STANDARD
oSIST prEN ISO 6498:2009

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Krma - Smernice za pripravo vzorca (ISO/DIS 6498:2009)

Animal feeding stuffs - Guidelines for sample preparation (ISO/DIS 6498:2009)

Futtermittel - Leitfaden für die Probenvorbereitung (ISO/DIS 6498:2009)

Aliments des animaux - Lignes directrices pour la préparation d'échantillons (ISO/DIS 6498:2009)

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English Version

Animal feeding stuffs - Guidelines for sample preparation (ISO/DIS 6498:2009)

Aliments des animaux - Lignes directrices pour la préparation d'échantillons (ISO/DIS 6498:2009)

Futtermittel - Probenvorbereitung (ISO/DIS 6498:2009)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 327.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN ISO 6498:2009) has been prepared by Technical Committee ISO/TC 34 "Agricultural food products" in collaboration with Technical Committee CEN/TC 327 “Animal feeding stuffs - Methods of sampling and analysis” the secretariat of which is held by NEN.

This document is currently submitted to the parallel Enquiry.

Endorsement notice

The text of ISO/DIS 6498:2009 has been approved by CEN as a prEN ISO 6498:2009 without any modification.

DRAFT INTERNATIONAL STANDARD ISO/DIS 6498

ISO/TC **34**/SC **10** Secretariat: **NEN**

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Animal feeding stuffs — Guidelines for sample preparation

Aliments des animaux — Lignes directrices pour la préparation d'échantillons

[Revision of second edition (ISO 6498:1998)]

ICS 65.120

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

In accordance with the provisions of Council Resolution 15/1993 this document is circulated in the English language only.

Conformément aux dispositions de la Résolution du Conseil 15/1993, ce document est distribué en version anglaise seulement.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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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 2.

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ISO 6498 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 10, and by Technical Committee CEN/TC 327, *Animal feeding stuffs* in collaboration.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

Animal feeding stuffs — Guidelines for sample preparation

1 Scope

This European Standard specifies guidelines for the preparation of test samples from laboratory samples of animal feeding stuffs including pet foods mostly quoted from AAFCO guidelines [1]. The guidelines are overruled by special instructions for sample preparation demanded by specific analysis methods for feeding stuffs (e.g. ISO, CEN, IEC).

2 Introduction

The sample preparation standard describes the procedure for preparing a sample coming to a laboratory (in general with minimum weight of 0,5 kg) to get a homogeneous test sample (with minimum weight of 100 g) with the same constitution, with the same composition and without any contamination.

From a test portion (of 0,2 g up to 25 g and more) for weighing to feedstuff analysis representative results should be achieved of the laboratory sample and finally of the whole lot from which the sample was drawn.

Therefore all the steps for sample preparation should be done rather quickly, under convenient and very clean conditions so there could be no degradation of sensitive substances, no contaminations and no oxidation process due to influences of too high temperatures, daylight or air or from residues of apparatus used or from samples prepared before or simultaneously.

A loss or a change of moisture during sample preparation must be taken into account for reporting results to origin moisture content for feedstuff control (or to dry mass of 100% or 88%).

3 Definitions

3.1 Definitions concerning 'Sample'

3.1.1
lot
a quantity of material that is assumed to be a single population for sampling purposes

3.1.2
laboratory sample
that portion of material sent to or received by the laboratory

3.1.3
test sample
prepared after subsampling or splitting from the laboratory sample, from which test portions are removed for testing or for analysis. It may be the laboratory sample if no preparation is required

3.1.4
test portion
the quantity of material, of proper mass and volume for measurement of the analyte or other property of

interest, removed from the test sample, taken from the laboratory sample directly if no preparation of the laboratory sample is required (e.g. with liquids), but usually taken from the prepared test sample

3.1.5
reserve sample
in general left material from the laboratory sample where splitted / subsampled test samples are taken away from and where no further particle size reduction is done. If mycotoxin- or GMO-analysis are done from the whole laboratory sample, then the reserve sample is reduced to the corresponding particle sizes too. The reserve sample should be stored under conditions maintaining integrity

3.2 Definitions concerning 'Substances'

3.2.1
substance
analytes or constituents for which the feeding stuff is to be analysed. Substituents could be classified to/as nutrients (e.g. crude protein), feed additives (e.g. vitamins), undesirable substances (e.g. heavy metals) and banned substances (e.g. proteins from animal origin). Substances are analysed by microscopic, (micro-) biological- or chemical procedures

3.2.1.1
stable substances
analytes or constituents which are not influenced by handling in the relevant sample preparation steps and by storing at room temperature over a longer time period

3.2.1.2
not-stable substances
analytes or constituents which are (1) volatile, degradable, heat-sensitive or (2) sensitive to light, enzymatic degradation or chemical oxidation, such that they are largely affected by sample preparation steps (e.g. partial drying, freeze drying, grinding) or sample storage. The whole sample preparation should be done quickly and carefully under adequate conditions. Especially the heating of mills during a long grinding procedure should be avoided. The corresponding (test) samples should be treated and stored under low temperatures (refrigerator and/or freezer) and protected from intensive air- and daylight-influences e.g. by using brown glass vessels

Table 1 — Classification of analytes to stable or not stable substances and reasons for degradation

	Stable substances:		**Not-stable substances:**	**Reason(s) for degradation / change:**
Nutrients:	(Crude) protein, fat, ash, fibre		Moisture	Temperature (volatile)
	Starch, sugar, lactose		Ammonia	Temperature (volatile)
	gas production, enzyme soluble organic substance		Organic acids (e.g. lactic acid, acetic acid, butyric acid, citric acid, fumaric acid, formic acid)	Temperature (volatile)
	Minerals (e.g. Ca, P, Mg, Na, K, Cl)		Fatty acids	Air oxidation (of double bonds)
Feed additives:	Trace elements (e.g. Cu, Zn, Mn, Fe, Se, Co)		Vitamins (e.g. vitamin A, D_3, E)	Temperature, UV-light (sensitive)

	Amino acids (e.g. lysine, methionine, tryptophan)		1,2-propandiol, glycol	Temperature (volatile)
	Enzymes (e.g. phytases, not starch polymerase enyzmes)		Probiotics (e.g. Saccharomyces cerevisiae, Enterococcus faecium)	Temperature (freezing), pressure (sensitive)
Undesirable substances:	Heavy metals (e.g. As, Pb, Cd, Hg)		Mycotoxins (e.g. aflatoxin B_1, deoxynivalenol, fumonisins, ochratoxin A, T-2 and HT-2 toxin, zearalenone, ergot alkaloids)	Mold growth and change of mycotoxins possible at room temperature; UV-light (sensitive –aflatoxin B_1)
	Dioxins and PCB-like Dioxins		Pesticides (e.g. PCBs, OCDs, other pesticides)	Temperature (sensitive)
			Hydrocyanic acid	Temperature (volatile)
Banned substances:	Proteins of animal origin		Antibiotics	Temperature (sensitive)

NOTE Too many microorganisms present in feeds can break down the organic compounds.

3.3 Definitions concerning `Animal feeding stuffs´

For identification and grouping a laboratory sample to the terms and annexes used within these guidelines some specific definitions are given in this document.

NOTE Definitions of animal feeding stuffs are given by legislation worldwide. As an example definitions of European directives and for straight feeds in an alphabetical list from a German committee are mentioned within the bibliography [8], [9], [10], [11], [12], [13].

3.3.1
birdseed
grains and oilseeds that are fed to birds

3.3.2
whole cottonseed
the entire unprocessed cottonseed product, including the hulls, lint, and meat of the cottonseed

3.3.3
mineral mix
consist mainly of mineral ingredient in either granular, bead, or small pelleted form. Vitamins, in encapsulated or beadlet form, may be incorporated into the mix. The entire mix is free flowing

3.3.3.1
mineral pellets
agglomerated feed formed by compacting and forcing through die openings by a mechanical process

3.3.4
dry feeds
a feed ingredient or a complete animal feed which typically contain not more than 15% moisture, 15% fat, or 15% sugar

3.3.4.1
pellets
agglomerated feed formed by compacting and forcing through die openings by a mechanical process

3.3.5
forages inclusively silage, hay, haylage, total mixed ration and by-products

3.3.5.1
forage
edible parts of plants, other than separated grain, that can provide feed for grazing animals or that can be harvested for feeding, including browse, herbage, and mast. Usage: Generally, the term refers to more digestible material (i.e. what is called pasturage, hay, silage, dehydrated and green chop) in contrast to less-digestible plant material, known as roughage

3.3.5.2
silage
forage preserved in a succulent condition by organic acids produced by partial anaerobic fermentation of sugars in the forage

3.3.5.3
roughage
fibrous, coarsely textured parts of plants, such as stovers, straws, hulls, cobs, and stalks

3.3.5.4
hay
the aerial portion of grass or herbage especially cut and cured for animal feeding

3.3.5.5
haylage
product resulting from ensiling forage with about 45% moisture in the absence of oxygen

3.3.5.6
total mixed ration (TMR)
a single mixture of all feed ingredients (forages, grains, and supplements) that is supplied to an animal for a 24-hour period. In practice, the 24-hour allotment of the mixture may be offered in one or more feedings.

3.3.5.7
by-products
products which remaining during process-procedures (e.g. from fermentation like dried destillers grains with solubles = DDGS) for the production of ingredients from plant material

3.3.6
oilseed
any seed from which oil is expressed (i.e. sunflower seeds)

3.3.7
large block feed and molasses block feeds
agglomerated feed compressed into a solid mass cohesive enough to hold its form and weighing over one kg, generally weighing about 20 kg. It may be marketed as a mineral block or a `caramelized´ molasses drum, containing various minerals and nutrients. Samples may be received in the lab as large chunks, cores or `sticky clumps´

3.3.8
liquid feed
a feed product that contains sufficient moisture to flow readily. A liquid feed is generally, if not always, a molasses based product

3.3.9
canned pet foods
a pet food which has been processed, packaged, sealed, and sterilized for preservation in cans or similar containers

3.3.10
semi-moist pet food
a meat based pet food that has been partially dried to prevent microbial decomposition. The moisture content may range from 15% – 40%. The product generally is in the form of strips or cubes and is designed to be stored at room temperature

3.3.10.1
dog chews
also known as `rawhide bones´. Meat strips that have been completely dried to a leather-like consistency

3.3.11
premixtures
a uniform mixture of one or more micro-ingredients with diluent and/or carrier. Premixes are used to facilitate uniform dispersion of the micro-ingredients (i.e. drugs, antibiotics, and/or vitamins) in a large mix

3.3.12
range cube and alfalfa hay cubes
an agglomerated feed formed by compacting and forcing the mix through die openings by a mechanical process. This results in a pellet that is about 2 cm diameter and 5 cm long. They may contain molasses to help hold them together. Usually they are fed on the ground. This procedure also applies alfalfa cubes that consists of chopped alfalfa hay oppressed into cubes usually larger than 16 cm^3

3.3.13
texturized and sticky feed
a mix of assorted grains and commercial feed (generally pelleted) all of which has been treated with a coating