

codex alimentarius commission



FOOD AND AGRICULTURE
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Agenda Item 5

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**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON PROCESSED FRUITS AND VEGETABLES**

24th Session

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15 – 20 September 2008

**PROPOSED DRAFT CODEX SAMPLING PLANS INCLUDING METROLOGICAL PROVISIONS FOR
CONTROLLING MINIMUM DRAINED WEIGHT¹ OF
CANNED FRUITS AND VEGETABLES IN PACKING MEDIA**

(At Step 3)

Governments and interested international organizations in observer status with Codex wishing to submit comments on this proposal, including possible economic implications, should do so in conformity with the Uniform Procedure for the Elaboration of Codex Standards and Related Texts (Codex Alimentarius Procedural Manual) before **15 August 2008**. Comments should be addressed:

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INTRODUCTION

1. A documented proposal for the development of a sampling plan, including metrological provisions for controlling minimum drained weight of canned fruits and vegetables was presented by France at the 23rd Session of the Codex Committee on Processed Fruits and Vegetables (Appendix X – ALINORM 07/30/27).
2. This new work was accepted by the Executive Committee of the Codex Alimentarius Commission at its 59th session, with the recommendation that the Commission amend the title by referring to canned fruits and vegetables “in packing media”, as there are other canned fruits and vegetables that do not require provisions for minimum drained weight. The Commission took note of this decision at its 30th session.

I GENERAL PROVISIONS

1 Purpose and scope of the standard

3. Provisions on quantity feature in the Codex standards on processed fruits and vegetables presented in packing media in the section "Weights and Measures".

¹ Throughout the document the term "weight" is used instead of "mass" as the terms "net weight" and "drained net weight" are recognized internationally, although not corresponding to the normal scientific terms.

4. On the one hand, these envisage a minimum fill of container, a classification of defectives and lot acceptance criteria:

“A lot should be considered as meeting the applicable minimum fill requirements when the number of defectives does not exceed the acceptance number (c) of the appropriate sampling plan, with a AQL of 6.5.”

5. On the other hand, there are also provisions on minimum drained weight for each canned fruit or vegetable under consideration, accompanied by criteria for lot acceptance:

“The requirements for minimum drained weight should be deemed to be complied with when the average drained weight of all containers examined is not less than the minimum required, provided that there is no unreasonable shortage in individual containers.”

6. The purpose of the proposal is to develop a sampling plan following a statistical approach to permit the control of the minimum drained weight requirements.

2 Relevance and timeliness

7. The requirements for quantity (minimum fill and drained net weight) in the standards for processed fruits and vegetables presented in packing media respond to the twin objective of protecting consumer interests and ensuring fair practices in the food trade.

8. Although the volume of international trade in canned fruits and vegetables is relatively large and involves all countries, existing standards do not include a sampling plan that can be used as a point of reference by producers, for official controls and for resolving possible trade disputes.

9. The only method currently proposed in the standards to control minimum drained weight is based on the average drained weight of containers examined, without specifying the sampling procedure or plan. A second criterion is stipulated in the standard: “...provided there is no unreasonable shortage in individual containers”.

10. Such control can be considered inoperable on three grounds:

- The sampling procedure is not specified. It supposes the selection of a sample from a lot, using a predetermined procedure, the control of individuals of that sample and a decision concerning the lot (acceptable, unacceptable) according to the inspection results. If a lot is to be checked, the sampling plan needs to specify the number of units, chosen at random in the lot to be inspected, that the sample should include;
- Control is based on average: this does not prevent significant variations between different prepackages of the controlled sample and thus provides insufficient guarantees on the drained weight of each individual container;
- The tolerable deficiency between actual quantity of product in the prepackage and quantity declared on the label is not specified, which can lead to decisions that vary from one operator to another and from one official service to another, and therefore to potential dispute.

11. The purpose of the standard is therefore to develop a sampling procedure and plan that will meet the requirements of statistical control and set the tolerable negative errors in prepackages in order to determine the conformity or non-conformity of a lot of canned fruits and vegetables as regards drained net weight.

3 Assessment in relation to criteria for the establishment of Codex work priorities and strategic objectives

12. The draft proposal is consistent with guidelines on criteria for establishing work priorities of the commodity committees (Appendix II – ALINORM 08/31/3):

- Canned fruits and vegetables are produced in virtually all countries of the world and are heavily traded internationally, between countries and between regions;
- National legislations differ and could therefore impede international trade;
- Drained net weight of canned fruits and vegetables is an established criterion in standards and related texts; and its standardized control is feasible;
- The absence of a method for the statistical control of drained net weight in standards is a shortcoming of existing standards and pipeline proposals; it is prejudicial to consumer interests, especially as regards fraudulent practices, and could result in unfair competition between operators;

- Work has already been undertaken internationally within the International Organization of Legal Metrology (OIML) and the European Union (Directive 76/211/EEC on the prepackaging in weight or volume of certain products in prepackages) and the work of WELMEC – European Cooperation in Legal Metrology – on guidance for the verification of drained weight, drained washed weight and deglazed weight (frozen foods) for foods packed in rigid containers.

4 **Codex general guidelines on sampling (CAC/GL 50-2004)**

13. These define the principal sampling notions and techniques useful to Codex committees. The general guidelines do not include a sampling plan. Their primary aim is to help commodity committees select the most appropriate plan for intended inspections (in particular chapters 3, 4 and 5).

14. Sampling plans are needed to ensure that objective, valid procedures are employed when foods are inspected for conformity with a Codex commodity standard.

15. These guidelines refer mainly to control of quality characteristics (e.g. product defects), quantity characteristics (characteristic related to composition of a product, e.g. sodium content of a dietary cheese) and, indirectly, to controls of product net weight. As regards checking the content of prepackages, the guidelines do not provide recommendations on double control: control of average and control of minimum content.

16. The guidelines recommend that commodity committees establish sampling plans of comparable effectiveness to that recommended in the guidelines on sampling plans.

17. The sampling plan selected by the commodity committee should specify consumers' risk (CR) noted P10, which corresponds to the proportion of defectives that the consumer (or client) will accept in 10% of cases, and producers' risk (PR) noted P95, which corresponds to the proportion of defectives accepted in 95% of cases (i.e. rejected in 5% of cases). CR and PR should have a level acceptable to the parties.

18. These general guidelines led the CCPFV to examine the possibility of annexing, into draft standards under discussion, two types of sampling plan applicable to control of qualitative criteria and control of net quantity (minimum fill) (cf. document in appendix to draft standard for jams, jellies and marmalades – attached: Appendixes 1 and 2). Sampling plan 1 corresponds to inspection level 1, normal control, used when previous inspections have confirmed conformity with applicable requirements. Sampling plan 2 corresponds to inspection level 2 used for tightened control (or in the case of dispute) when there is no information on the controlled lot.² The AQL in these two plans is 6.5.

19. In addition, OIML recommendation R87 has established a sampling plan and a procedure for use by official services to verify quantity of product in prepackages. It provides for double control of average and minimum content.

5 **Control of net mass and drained net mass for canned fruits and vegetables in packing media**

20. In view of the different elements expressed above, it would therefore seem necessary for the CCPFV standards:

- to refer to the OIML recommendation R87,
- that the recommendations of the WELMEC guide be examined by the CCPFV for introduction into a standard on the metrological control of the drained net weight of canned fruits and vegetables in packing media and rigid containers.

II **CONTENT OF PROPOSED DRAFT STANDARD**

21. Codex standards on canned fruits and vegetables in packing media envisage the statistical control of net weight (minimum fill) by applying a sampling plan with an AQL of 6.5. Such a plan is not envisaged for the control of drained net weight of fruit or vegetable in the container.

1 **Effectiveness of the plan with an AQL = 6.5**

22. Tracing the operating characteristic curve of sampling plan n° 1 featured in current draft standards shows that for this plan (AQL = 6.5) P10 varies from 18 to 51% (cf. attached curve in ANNEX 1 – there is a similar curve in Section 4.1, Figure 5 of the general guidelines).

² These two plans do not correspond entirely to those in the Codex guidelines (paragraph 4.2.2. Recommended plans by attributes).

23. For example, in the case of sampling plan 1 (document attached in ANNEX 2 – ALINORM 07/30/27) in the case of a lot of 4800 items, and control of a sample $n = 6$ with an acceptance number $c = 1$, there is a 10% probability that the consumer (consumers' risk) will accept a lot containing 51 % of defectives, thus in 51% of the cases of the prepackages not meeting the minimum quantity. The producers' risk (PR) expressed by a proportion noted P95, corresponding to the proportion of defective items in the lot accepted in 95% of cases (i.e. rejected in 5% of cases) is therefore 3%.

24. Similarly, in the case of sampling plan 2 (document attached in ANNEX 3 – ALINORM 07/30/27) in the case of a lot of 4800 items and control of a sample $n = 13$ with an acceptance number $c = 2$, there is a 10% probability that the consumer (consumers' risk) will accept a lot containing 36% of defectives, thus in 36% of the cases of prepackages not meeting the set minimum quantity. The producers' risk (PR) expressed by a proportion noted P95 corresponding to the proportion of defective items in the lot accepted in 95% of cases (i.e. rejected in 5% of cases) is then 6.6%³.

25. As the curve indicates (Annex 1) the P10 falls as (n) increases without the acceptance number (c) increasing in the same proportions. Thus, for a lot of 240 000 items and more, with $n = 60$ and $c = 7$, P10 will be 18%. The larger the sample, the lower the risk to the consumer of accepting lots containing high levels of defective items.

2 Effectiveness of the plan with an AQL = 2.5

26. OIML recommendation R87 has only retained plans with an AQL of 2.5 for the control of net mass. An AQL of 2.5 is also identified in the WELMEC recommendations for the control of drained net weight. A comparison of the effectiveness of the two plans (AQL = 6.5 and AQL = 2.5) is set out in section 4.2 of the Codex general guidelines on sampling, in particular sections 4.2.2.2 and 4.2.2.3. The following table provides a brief summary for a normal inspection plan.

AQL 2.5	$n = 5$ $c = 0$	$n = 20$ $c = 1$	$n = 32$ $c = 2$	$n = 50$ $c = 3$
	P95 = 1.02 %	P95 = 1.8 %	P95 = 2.59 %	P95 = 2.77 %
	P50 = 12.2 %	P50 = 8.25 %	P50 = 8.25 %	P50 = 7.29 %
	P10 = 36.9 %	P10 = 18.1 %	P10 = 15.8 %	P10 = 12.9 %

AQL 6.5	$n = 8$ $c = 1$	$n = 13$ $c = 2$	$n = 20$ $c = 3$	$n = 32$ $c = 5$	$n = 50$ $c = 7$
	P95 = 2.64 %	P95 = 6.63 %	P95 = 7.13 %	P95 = 8.5 %	P95 = 8.2 %
	P50 = 20 %	P50 = 20 %	P50 = 18.1 %	P50 = 17.5 %	P50 = 15.2 %
	P10 = 40.6 %	P10 = 36 %	P10 = 30.4 %	P10 = 27.1 %	P10 = 22.4 %

27. The OC curves in section 4.2 of the Codex general guidelines on sampling indicate that the choice of an AQL of 2.5 by the OIML for the control of quantity (net weight and drained net weight) is wholly appropriate and should be copied in the Codex standards on canned fruits and vegetables in a packing medium. These curves confirm the very average effectiveness of sampling plans 1 and 2 proposed in annex to the draft standards of the CCPFV (ALINORM 07/30/27).

3 Control of net weight and drained net weight

3.1 Observations on the control of net weight

28. In Codex standards and draft standards (CPPFV), this control is not based on an average but on a count of the number of defective units, in other words, units with a real net weight below nominal net weight, i.e. the weight declared on the labelling. This type of control does not envisage a control of average and does not specify reasonable discrepancies that can be tolerated between real net weight (measured) and nominal net weight.

29. Thus, a lot of canned items might for example be rejected in the following cases, based on plan I, normal inspection (Annex 2), when :

- for a lot N of 4801 to 24000 items and an inspection of net weight of 1 sample of 13 items, 3 of those items do not meet the net weight stipulated in the standard; for example, for a content of 850 ml and a required net mass of 765 g (90% of the water capacity of the container), the lot will be rejected both for 3 items with measured net weight of 760 g, 763 g and 762 g, and for 3 items with measured net weight of 700 g, 650 g and 600 g.

³ Table 2A –control of percentage of non-conforming items – single sampling plans – normal, tightened, reduced controls - NFX 06-022 – ISO 2859 part 1.

30. That is why OIML recommendation R87 and the provisions adopted by the European Union prescribe an inspection of rigid prepackages by sampling in two parts:

- control of the actual content of each sample prepackage, and
- control of the average of actual contents of the sample prepackages.

31. The CCPFV standards should therefore refer to OIML recommendation R87 for the control of net weight (minimum fill for canned fruits and vegetables).

3.2 Control of drained net weight

3.2.1 *Observations on the control of drained net weight*

32. As was stated for the control of net weight, control of the average of real drained net weights of the sample prepackages is not sufficient by itself for the control of drained net weight, as it can mask significant discrepancies between real drained net weight and the nominal drained net weight declared on the label. Such discrepancies are indicative of filling conditions that do not reflect good manufacturing practices and that are prejudicial to the economic interests of consumers and market operators, by creating conditions of unfair competition.

33. Canned fruits and vegetables in a packing medium should therefore be produced in accordance with the following conditions:

- The average actual drained net weight of prepackages should not be lower than the nominal net weight,
- The proportion of prepackages with a deficit greater than the tolerable negative error should be sufficiently low for the prepackage lots to satisfy control requirements.

34. Therefore, the recommendations concerning the control of drained net weight should include double control:

- control of the average of the real drained net weights in the sample,
- control of the real drained net weight of each sample to determine the number of items that have a drained net weight lower than the tolerable minimum drained net weight, i.e. the nominal drained net weight less the tolerable negative error.

35. The prepackages of a lot that have a real drained net weight lower than the tolerable minimum drained net weight are considered defectives.

36. If the number of defectives in the sample is lower than or equal to the acceptance number, the lot is accepted.

37. If the number of defectives in the sample is equal to or higher than the rejection number, the lot is rejected.

3.2.2 *Recommendation*

38. The recommendations of WELMEC for the metrological control of drained net weight (destructive testing) both for sampling rules (AQL = 2.5) and level of tolerable negative error should be adopted by the CCPFV (cf. attached proposed draft standard).

39. In view of the technical difficulties of controlling the drained net weight of foods packed in non-rigid containers, the draft sampling plan only applies to rigid containers, as in the case of the WELMEC recommendations.

REQUEST FOR COMMENTS

40. Codex members and observers are invited to send their comments on *the proposed draft Codex Sampling Plans including Metrological Provisions for controlling Minimum Drained Weight of Canned Fruits and Vegetables in a Packing Medium* (see Appendix). The proposed draft plan and the comments sent at Step 3 will be examined at the 24th session of the Codex Committee on Processed Fruits and Vegetables.

**PROPOSED DRAFT CODEX SAMPLING PLAN FOR THE CONTROL OF DRAINED NET WEIGHT
OF CANNED FRUITS AND VEGETABLES PRESENTED IN A
PACKING MEDIUM IN RIGID CONTAINERS¹**

1 SCOPE

The standard applies to canned fruits and vegetables presented in a packing medium in rigid containers for which specific product standards require a declaration of minimum drained net weight. It specifies the conditions for the metrological control of the drained net weight of such products.

This standard conforms with the R87 recommendations of the International Organization of Legal Metrology (OIML) and the indications in the Codex guidelines on sampling (CAC/GL 50-2004).

The purpose of the metrological control of the content of prepackages is to ensure that the average net content of a lot is at least equal to the content declared on the prepackage labelling, and that the difference between the actual content of each container and the average content of the lot is as limited as possible.

- (a) Control of the actual content of each prepackage uses sampling plans by attributes whose principles are presented in the ISO 2859 standards.
- (b) Control of average content is a comparative test of the average content of prepackages of a sample extracted from the lot under inspection; the statistical principle of this test is presented in ISO standards 2854-1976, and 3494-1976.

2 DEFINITIONS²

2.1 Nominal net weight:

Nominal net weight is the quantity of product in the prepackage, including packing medium, declared on the labelling.

2.2 Drained net weight¹

The drained net weight is the quantity of product in the prepackage less the packing liquid.

2.3 Packing media:

The packing media are defined in the Codex guidelines on packing media for canned fruits (CAC/GL 51-2003) and the Codex guidelines on packing media for canned vegetables (under preparation), in addition to the specific provisions in each commodity standard.

2.4 Capacity of container:

The capacity of the container corresponds to the volume of distilled water at 20° C that the container holds when completely filled and sealed. For non-metallic rigid containers, such as glass jars, the drained weight of a product is calculated on the basis of the weight of distilled water at 20° C that the container holds when completely full, less 20 ml.

2.5 Lot:

2.5.1 A lot is a definite quantity of some commodity manufactured or produced under conditions which are presumed uniform.

In the context of this standard, a lot comprises all prepackages of same nominal quantity, same kind, same manufacture, filled in the same location and the subject of control. The lot size is defined as follows:

2.5.2 When inspection of prepackages takes place at the end of a filling run, the lot size is equal to the maximum hourly production of the filling run, without limitation of size.

In other cases, the lot size is limited to 10 000 prepackages.

2.6 Tolerable negative error

2.6.1 Tolerable negative error of a prepackage is the maximum deficit between actual drained net weight and nominal drained net weight of the prepackage.

2.6.2 Tolerable negative error for the actual drained net weight of a prepackage is determined according to the following table:

¹ Throughout the document the term "weight" is used instead of "mass" as the terms "net weight" and "drained net weight" are recognized internationally, although not corresponding to the terms that should normally be used in a scientific context.

² Definitions: the only definitions given are those needed for this proposed draft; a full list of definitions is given in the general guidelines on sampling (CAC/GL 50-2004).

Drained net weight in grams	Tolerable negative error for drained net weight	
	In % of Qn	In grams
5 to 50	18	-
50 to 100	-	9
100 to 200	9	-
200 to 300	-	18
300 to 500	6	-
500 to 1000	-	30
1000 to 10 000	3	-

For application of this table, the values calculated in units of mass of tolerable negative errors indicated in percentages should be rounded up to the nearest tenth of gram.

3 PROCEDURE FOR THE SAMPLING AND CONTROL OF DRAINED NET MASS

3.1 Sampling:

The sample prepackages are chosen at random. The size of sample (n) will correspond to the number of prepackages (or items) taken from the lot to be controlled or inspected.

3.2 Sampling plan:

3.2.1 The sampling plan for the control of drained net weight is a sampling plan by attributes with an AQL of 2.5.

3.2.2 This sampling plan should only be used for lots comprising 100 or more items.

3.3 Control of actual content of a prepackage

3.3.1 To obtain the tolerable minimum content, the tolerable negative error is deducted from the corresponding nominal quantity of the prepackage. Prepackages of a lot with actual content below tolerable minimum content are considered defectives.

3.3.2 Destructive testing

Destructive testing is conducted according to the single sampling plan below and should only be used for lots of 100 or more items.

3.3.3 The number of controlled prepackages is given in the table below:

- if the number of defectives in a sample is less than or equal to the acceptance number, the lot is considered acceptable;
- if the number of defectives in the sample is equal to or higher than the rejection number, the lot is rejected.

Lot size	Sample size	Number of defectives	
		Acceptance number	Rejection number
100 to 10 000 ³	20	1	2

* For lots of more than 10 000 items, the lot is divided so that each segment has at least 100 and not more than 10 000 items. In this case, a lot is accepted if each of the segments is accepted by the inspection.

* For lots that have fewer than 100 items, the statistical control by sampling envisaged for lots of at least 100 to at most 10 000 items is not appropriate.

³ There is no mathematical relationship between sample size (n) and lot size (N). Therefore, mathematically, there is no objection to taking a sample of small size to inspect a homogeneous lot of large size. The ratio n/N influences sampling error only when the lot size is small. However, in order to reduce the risk of accepting a large number of defective items, it is usual to increase the sample size as the lot size increases, especially when it is assumed that the lot is not homogeneous. Reference is made to the tables of ISO 2859 and ISO 3951 for correspondence between lot size and sample size.

3.4 Control of average actual drained net weight of items in a prepackage lot

3.4.1 A prepackage lot is considered acceptable for this check if the mean

$\bar{X} = \frac{\sum X_i}{n}$ of actual contents “X_i” of “n” sample prepackages is greater than the value:

$$Q_n - \frac{s}{\sqrt{n}} \cdot t_{(1-\alpha)}$$

Where :

- Q_n : nominal quantity of prepackages
- n : number of sample prepackages for this check
- s : estimated standard deviation of actual contents of the lot
- t_(1-α) : random variable of Student distribution with v = n – 1 degrees of freedom and confidence level (1 – α)

3.4.1.1 By calling “X_{ii}” the measurement of actual content of the “i” item of a sample of “n” items, we obtain:

3.4.1.2 the mean of the sample measurements by calculating:

$$\bar{X} = \frac{\sum_{i=1}^{i=n} X_i}{n}$$

3.4.2 the estimated standard deviation “s” by calculating :

- the sum of the square of the measurements $\sum_{i=1}^{i=n} (X_i)^2$
- the square of the sum of the measurements $\left(\sum_{i=1}^{i=n} X_i\right)^2$ and $\frac{1}{n} \left(\sum_{i=1}^{i=n} X_i\right)^2$
- the corrected sum CS = $\sum_{i=1}^{i=n} (X_i)^2 - \frac{1}{n} \left(\sum_{i=1}^{i=n} X_i\right)^2$
- the estimated variance $v = \frac{CS}{n - 1}$
- the estimated standard deviation is : $s = \sqrt{v}$

3.4.3 Criteria of acceptance or rejection of prepackage lot for control of mean

3.4.3.1 Criteria for destructive testing

Lot size	Sample size	Criteria	
		Acceptance	Rejection
Whatever the size (≥ 100)	20	$\bar{X} = Q_n - 0.640s$	$\bar{X} < Q_n - 0.640s$

4 RECOMMENDATIONS FOR THE MEASUREMENT OF DRAINED NET WEIGHT

4.1 The sampling and control of lots should preferably be conducted on the packing site or, failing that, at the point of importation.

4.2 After manufacture, canned fruits and vegetables in a packing medium are subject to osmosis between the fruit or vegetable and the drained packing medium until a sufficiently stable equilibrium of mix is attained.

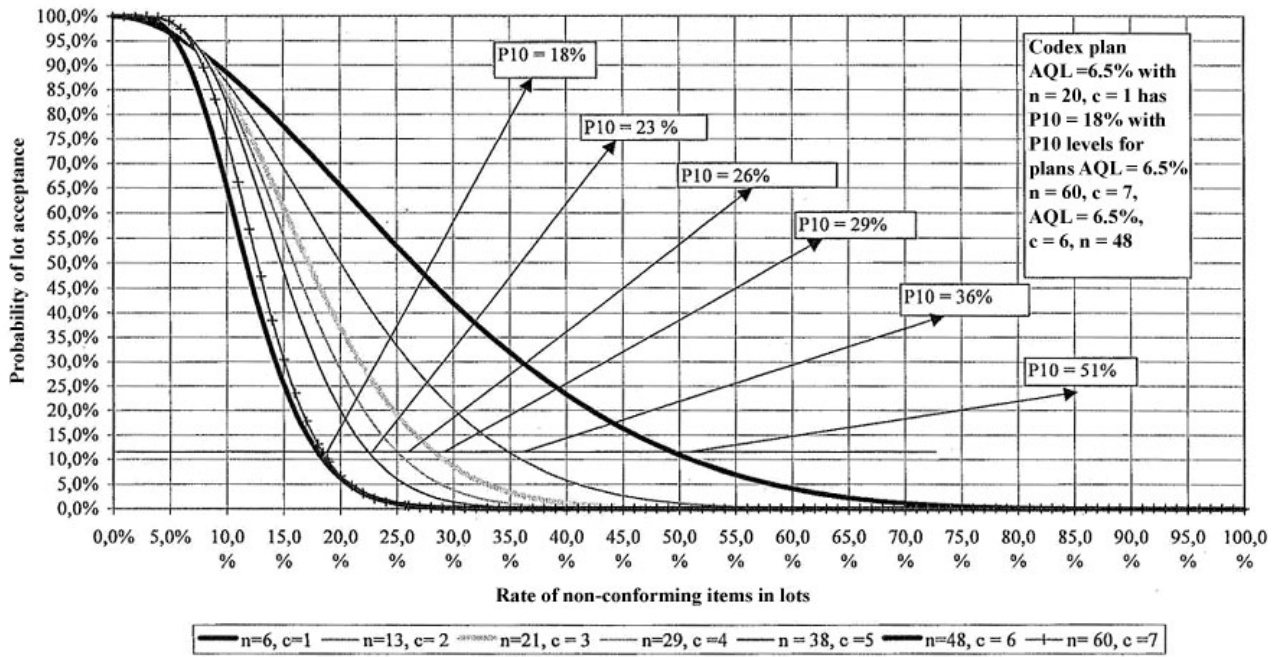
Sampling should therefore take place after such equilibrium has been attained, in other words at least 14 days after sterilization, pasteurization or any similar process, or when the operator considers the products ready for market. The time intervals recommended by the OIML and the WELMEC working group are as follows:

Product	Time interval before control	
	FROM	TO
Fruits, vegetables and other vegetable foodstuffs (except strawberries, raspberries, blackberries, kiwi and loganberries)	30 days after sterilization	Shelf life
Strawberries, raspberries, blackberries, kiwi, loganberries	30 days after sterilization	2 years after sterilization

ANNEX 1

Sampling plans by attributes with AQL = 6.5%

n = number of items in the sample, c = maximum number of defectives acceptable in the sample



ANNEX 2**SAMPLING PLANS**

The appropriate inspection level is selected as follows:

Inspection level I - Normal Sampling

Inspection level II - Disputes, (Codex referee purposes sample size), enforcement or need for better lot estimate

SAMPLING PLAN 1

(Inspection Level I, AQL = 6.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1 KG (2.2 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
4,800 or less	6	1
4,801 - 24,000	13	2
24,001 - 48,000	21	3
48,001 - 84,000	29	4
84,001 - 144,000	38	5
144,001 - 240,000	48	6
more than 240,000	60	7
NET WEIGHT IS GREATER THAN 1 KG (2.2 LB) BUT NOT MORE THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
2,400 or less	6	1
2,401 - 15,000	13	2
15,001 - 24,000	21	3
24,001 - 42,000	29	4
42,001 - 72,000	38	5
72,001 - 120,000	48	6
more than 120,000	60	7
NET WEIGHT GREATER THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
600 or less	6	1
601 - 2,000	13	2
2,001 - 7,200	21	3
7,201 - 15,000	29	4
15,001 - 24,000	38	5
24,001 - 42,000	48	6
more than 42,000	60	7

ANNEX 3
SAMPLING PLAN 2
(Inspection Level II, AQL = 6.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1 KG (2.2 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
4,800 or less	13	2
4,801 - 24,000	21	3
24,001 - 48,000	29	4
48,001 - 84,000	38	5
84,001 - 144,000	48	6
144,001 - 240,000	60	7
more than 240,000	72	8
NET WEIGHT IS GREATER THAN 1 KG (2.2 LB) BUT NOT MORE THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
2,400 or less	13	2
2,401 - 15,000	21	3
15,001 - 24,000	29	4
24,001 - 42,000	38	5
42,001 - 72,000	48	6
72,001 - 120,000	60	7
more than 120,000	72	8
NET WEIGHT GREATER THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
600 or less	13	2
601 - 2,000	21	3
2,001 - 7,200	29	4
7,201 - 15,000	38	5
15,001 - 24,000	48	6
24,001 - 42,000	60	7
more than 42,000	72	8