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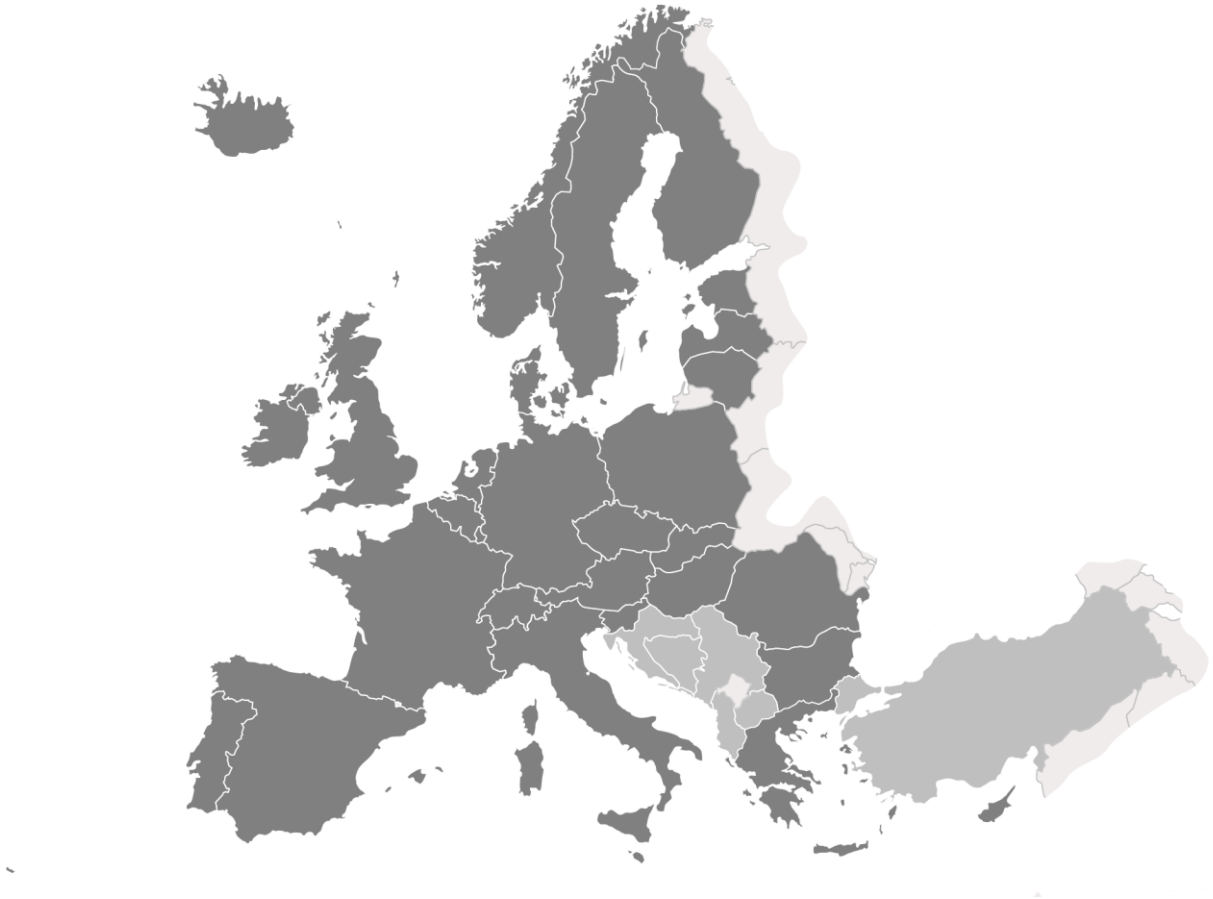
Drained Weight

Guide on the Verification of Drained Weight, Drained Washed Weight and Deglazed Weight



WELMEC

European Cooperation in Legal Metrology

WELMEC is a co-operation between the legal metrology authorities of the Member States of the European Union and EFTA.

This document is one of a number of Guides published by WELMEC to provide guidance to packers, importers and the Competent Departments responsible for ensuring the prepackages meet the specified requirements.

The Guides are purely advisory and do not themselves impose any restrictions or additional technical requirements beyond those contained in relevant EU Directives.

Alternative approaches may be acceptable, but the guidance provided in this document represents the considered view of WELMEC as to the best practice to be followed.

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Foreword

In the absence of any harmonised Community procedure, this guide provides guidance regarding the determination of drained net weights in order to comply with the requirements of European Food Labelling legislation[1,2] The guidance is based on the same tolerances and weight requirements as those specified for e-marked prepackages in Directive 76/211/EEC[3] (hereafter The Directive). Complying with this guidance will fully cover metrological requirements for drained weight. This guidance is harmonised with the requirements and test methods stated in OIML R 87 (2004)[4].

This guidance sets out requirements, sampling plans and test procedures for the verification of drained weights, drained washed weights and drained deglazed weight (hereafter referred to as 'drained weight') which can be used by those involved in their monitoring and regulation. Additional guidance is provided for manufacturers who are obliged to control their filled weights in a manner which ensures the achievement of drained weight targets.

Scope

This guide covers all products in prepackages where there is a requirement to indicate the drained weight of solid foodstuffs, presented in a liquid medium within the meaning of European Food Labelling Legislation. This guide is also in compliance with OIML R 87 (2004), where application of the definition of packing material considers the liquid of a drained weight product as packing material and the solids as product.

For products where it is unclear whether the liquid of a drained weight product is "meant to be left over after use", the list of liquid media in European Food Labelling Legislation[1] provides clarity.

For practical reasons, drained washed weight is included in this guide although it is not mandatory to declare the "drained washed weight[5]". It applies to cases where the sauce for example is intended for consumption.

[1] Article 8.4 of Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the Approximation of the Laws of the Member States relating to the Labelling, Presentation and Advertising of Foodstuffs. This will be repealed on 13 December 2014.

[2] Article 23 of Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the Provision of Food Information to Consumers.

[3] Council Directive of 20 January 1976 on the Approximation of the Laws of the Member States relating to the Making-up by Weight or by Volume of certain Prepackaged Products (76/211/EEC).

[4] OIML R 87 (2004): Quantity of Products in Prepackages.

[5] Note that 'drained washed weight' is a declaration of one or more ingredients and outside the scope of legal metrology

Contents

1 Definitions

The following definitions are based on those in The Directive, European Food Labelling Legislation and in OIML R 87 (2004). These terms are not used in European Legislation but are a coherent explanation of how the terms should be interpreted in the light of the current OIML R 79 (1997)[6] and OIML R 87 (2004).

1.1 Nominal weight

Quantity of product in a prepackage, including the liquid medium/glaze (see section 1.4), declared on the label.

1.2 Nominal drained weight, nominal drained washed weight and nominal drained deglazed weight (An)

Quantity of product in a prepackage less the liquid medium/glaze (see section 1.4)

1.3 Actual drained weight, actual drained washed weight and actual drained deglazed weight

Quantity of product in a prepackage after equilibrium of solution is established (where applicable, but not for deglazed weight) and the liquid medium has been drained according to the test methods in section 3.

Note 1: Glazed seafood: Pre-frozen seafood which is covered with a film of water so that the frozen film protects the product quality. The actual weight of the seafood shall be exclusive of the glaze (see section 1.4).

Note 2: In this guide the term "weight" is used instead of "mass" because "drained weight" is an internationally recognised term. Because of the uncertainty of the test procedure, there is no material difference in the value of "weight" and "mass".

1.4 Liquid medium (pouring liquid)

Liquid medium (pouring liquid) is defined as the following products, possibly in mixtures and also where frozen or quick frozen, provided that the liquid is merely an adjunct to the essential elements of that preparation and is thus not a decisive factor for the purchase: water, aqueous solutions of salts, brine, aqueous solutions of food acids, vinegar, aqueous solutions of sugars, aqueous solutions of other sweetening substances, fruit or vegetable juices in the case of fruit or vegetables.

Note 1: The definition of liquid medium (pouring liquid) is in accordance with European Food Labelling Legislation[1,2].

Note 2: The definition of the pouring liquid is equivalent to Codex General Standard for the labelling of Prepackaged Foods (CODEX STAN 1-1985), section 4.3.3.

Note 3: Where the application of the definition of packing material of OIML R87 (2004) leads to confusion, the liquids mentioned in European Food Labelling Legislation[1] and CODEX STAN 1-1985 may give further specifications.

For the purposes of voluntary declarations of drained weight, the following media may be used individually or in combination with those listed above: aqueous suspensions of

[6] OIML R 79 (1997): Labelling requirements for prepackaged products.

starches, milk and milk derivatives, fruit or vegetable purees, and other solid and semi solid mediums such as duck fat or edible oils.

1.5 Batch

The batch comprises all the prepackages of the same nominal quantity, the same type and the same production run, packed in the same place, which are to be inspected.

1.6 Tolerable Negative Error (TNE)

The amount by which prepackages may fall below the nominal drained weight, nominal drained washed weight or nominal drained deglazed weight.

Note 1: The sampling plan in section 2.3 and tolerances used in Table 1 have been taken from The Directive for making-up by weight of certain prepacked products.

2 Requirements and sampling plan

Requirements and sampling plan are based on the requirements in The Directive.

2.1 Requirements for batch size

The batch size shall be limited to the amounts laid down below.

When prepackages are checked at the end of the packing line, the number in each batch shall be equal to the maximum hourly output of the packing line, without restriction as to batch size.

In other cases the batch size shall be limited to 10 000.

2.2 Requirements for drained weight

2.2.1 The actual drained weight of the prepackages in a batch shall not be less, on average, than the nominal weight (subject to section 2.3.1 of the test procedure).

2.2.2 Individual prepackages having a negative error of the actual drained weight greater than the tolerable negative error laid down in Table 1, will be defined as defectives (subject to section 2.3.2.1 and 2.3.2.2 of the test procedure).

2.2.3 Individual prepackages having a negative error of the drained weight, greater than twice the tolerable negative error laid down in Table 1, will be defined as non acceptable and may not be marketed (subject to clause 2.3.2.3 of the test procedure).

Table 1: Tolerable negative error of the drained weight

Nominal drained weight A_n (g)	**Tolerable Negative Error (TNE)**	
	As % of A_n	**g**
5 to 50	9	-
50 to 100	-	4.5
100 to 200	4.5	-
200 to 300	-	9
300 to 500	3	-
500 to 1 000	-	15
1 000 to 10 000	1.5	-

Note 1: The tolerances in Table 1 reflect those recommended in OIML R 87 (2004).

2.3 Test procedure (destructive test)

Sample size n = 20 prepackages, drawn at random from the batch, shall be checked.

2.3.1 Average test

A batch of prepackages shall be considered acceptable for the purpose of this check if the sample average of the actual drained weight values ($\bar{x}$ = the sum of the actual drained weights of this sample or prepackages divided by 20) is greater than or equal to:

$$A_n - \frac{s \cdot t}{\sqrt{n}} = A_n - 0.64 \cdot s$$

In this formula:

A_n is the nominal drained weight, nominal drained washed weight or nominal drained deglazed weight of the prepackage,

S is the estimated standard deviation of the actual contents of the batch*, and,

t is 2.86 (0.995 confidence level of a Student distribution with 19 degrees of freedom).

* the estimated standard deviation s is calculated using the following expression:

$$\sqrt{\frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + (x_3 - \bar{x})^2 + ... (x_{20} - \bar{x})^2}{19}}$$

The criteria for acceptance or rejection of the average, $\bar{x}$, of a batch of prepackages are[7] shown in Table 2:

Table 2: Acceptance and rejection criteria

Number in batch	Number in sample	Criteria	
		Acceptance	Rejection
100 or more	20	$\bar{x} \geq A_n - 0.640s$	$\bar{x} < A_n - 0.640s$

2.3.2 Checking the minimum acceptable quantity

Testing for the number of defectives or non acceptable units in the batch shall be carried out in accordance with the single sampling plan shown in Table 3[8]:

Table 3: Single sampling plan

Number in batch	Number in sample	Number of defective units	
		Acceptance criterion	Rejection criterion
100 or more	20	1	2

2.3.2.1 If the number of defective units found in the sample is equal to 0 (zero) or 1, then the batch shall be considered to be acceptable (see also 2.2.2)[9].

2.3.2.2 If the number of defective units found in the sample is 2 or more then the batch shall be rejected (see also 2.2.2)[8].

[7] Based on Directive 76/211/EEC, Annex II, 2.3.3.2.
[8] Based on Directive 76/211/EEC, Annex II, 2.2.2.
[9] Directive 76/211/EEC Annex II, 2.2.2.

2.3.2.3 If there are any non acceptable units found in the sample, then the batch shall be rejected (see also 2.2.3).

Note 1: If the batch fails to satisfy the requirements of the sampling plan then the batch will require rectification. Where appropriate, batches may be blended together or sorted, in order for the requirements of the guide to be met. If this is not appropriate, then the batch must be disposed through a controlled secondary outlet and labelled with the revised nominal drained weight, clearly indicating that the figure declared does not conform to the guide.

3 Procedures for determination of drained weight

3.1 General

3.1.1 Scope and field of application

This procedure is used when checking drained weight, drained washed weight or drained deglazed weight of prepacked foodstuffs in the range 5 g to 10 kg. The procedure is based on OIML R 87 (2004).

3.1.2 Location of sampling and testing

Sampling and testing of a batch shall preferably be performed at the packer's premises. If this is not possible then, for imported products, sampling may be performed at the location of import.

Sampling and testing of a batch may be performed elsewhere in the distribution chain, e.g. wholesale or retail premises.

3.1.3 Conditions for testing

Sampling can be performed at any time.

However, the test shall be performed when, according to the manufacturer, the product is ready to be consumed, and it is available for sale or supply.

If the product is offered for sale or being delivered for sale, it may be inspected and must comply.

If the test is to be performed under specific conditions (such as a 'wet area' or 'controlled ambient temperature') the product should be moved to a suitable location, if necessary.

For product that is not frozen or glazed: Samples that are drawn shall be kept within the temperature range specified by the packer or at 20 °C ± 4 °C for a period of 12 hours before the determination of drained weight or drained washed weight is undertaken.

For frozen or glazed products: Samples shall be kept frozen in a temperature of -18 °C ± 2 °C prior testing to prevent clumping of the product.

Glazed products are products that have a protective layer of ice formed at the surface of a frozen or ultra-frozen product, which is applied by spraying it with, or dipping it into, clean seawater, potable water or potable water with additives, as appropriate. Although frozen, such glazing shall be removed before determining the actual weight of the product.

3.2 Apparatus

3.2.1 Sieve

3.2.1.1 *Drained weight or drained washed weight*

Flat sieve[10] with a square mesh of 2.5 mm (nominal wire thickness 1.0 mm)

Note 1: For tomatoes see alternative square meshes in Table 4.

The diameter of this sieve should be 200 mm in the case of containers with a capacity of 850 ml or less, and 300 mm in the case of containers with a capacity greater than 850 ml.

Note 2: If the nominal weight of the prepackage is 2.5 kg or more the contents should, after pre-weighing or pre-taring the sieves, be divided evenly among two or more sieves of the same dimensions.

3.2.1.2 *Drained deglazed weight*

Flat sieve with a square mesh of nominal 2.5 mm (nominal wire thickness 1.0 mm).

Note 1: A square aperture 2.8 mm (ISO Recommendation R 565) or alternatively 2.38 mm (US No. 8 Standard screen) is appropriate.

Glazed seafood

Use a 200 mm diameter sieve for prepackages with drained deglazed quantities up to 900 g, and use a 300 mm diameter sieve for prepackages greater than 900 g.

Note 2: The size may need to vary in order to adapt to the size of the item to deglaze, for example using a 20 x 30 cm sieve for 500 g samples of fish fillets.

Exclusively for frozen shrimps and crabmeat

Use a 200 mm diameter sieve for prepackages with drained quantities up to 450 g and use a 300 mm diameter sieve for prepackages greater than 450 g.

Note 3: If the drained weight is 2.5 kg or more the solids should, after pre-weighing or pre-taring the sieves, be divided evenly among two or more sieves of the same dimensions.

3.2.2 Measurement uncertainty

The expanded uncertainty (k = 2) associated with the results of measurements determining drained weight should not exceed 0.2 TNE.

Example of sources of uncertainty:
- maximum permitted error (if instrument is verified)
- rounding of indication
- rounding on zero indication (taring of sieve)
- repeatability
- eccentric load
- water and/or product on sieve (not tared)
- water and/or product on sieve (when weighing more than one portion on one sieve).

[10] ISO 3310-1:2000. Test sieves. Technical requirements and testing. Part 1: Test sieves of metal wire cloth.

3.3 Preparation of the sample

3.3.1 Tare weight

Choose a sieve with the characteristics detailed in section 3.2.1.

Weigh or establish a tare for the clean sieve (weight Pe_1).

Note 1: A subsequent weighing of the same sieve should ensure that it is clean and free of product debris. The sieve does not have to be dry as long as it is weighed accurately before being used.

3.3.2 Washing, draining (refer to Table 4 for the appropriate method for each product) and deglazing

The sample shall have attained the appropriate temperature in accordance with the sampling criteria set out in section 3.1.3.

3.3.2.1 *Removal of container contents – drained weight*

Open the prepackage and pour the product and liquid medium across the sieve. Distribute the product and liquid medium over the surface of the sieve but do not shake the material on the sieve. Carefully invert by hand all the solid product, or parts thereof, which have hollows or cavities if they fall on the sieve with the hollows or cavities facing up. Drain the hollows or cavities in soft products (e.g. apricot caps) by tilting the sieve.

If the washing step for Drained Washed Weight is not required proceed to 3.3.2.4.

3.3.2.2 *Removal of container contents – drained washed weight*

There are two methods for the determination of drained washed weight depending on the product. Both methods can be used for tomato sauce products.

If the medium is oil (higher viscosity), the second method described in CODEX STAN 94-1981 for canned sardines and sardine-type products, section 7.4, should be used.

1st method:

Open the package or container and pour the contents carefully across the mesh of the sieve(s), distributing them over the surface of the sieve, avoiding product damage. For the more viscous materials it may be necessary to remove the contents with a spoon and spread them carefully across the mesh of the sieve(s) but this must be accomplished without product damage.

Remove any residual solid material form the container by rinsing with water at 20 °C ± 4 °C and add these rinsings to the sieve.

Wash the contents of the sieve(s) in a gentle stream of water at 20 °C ± 4 °C with minimal disturbance to the product until the sauce or other liquid substance have been removed. Larger items, e.g. sardines or fish fillets, should be turned over, avoiding product damage, to facilitate this process. Then proceed to 3.3.2.4.

2nd method:

In Codex standard for canned tuna and bonito (CODEX STAN 70-1981) and codex standard for canned finfish (CODEX STAN 119-1981), and for canned sardines and

sardine-type products (CODEX STAN 94-1981), the procedure for determination of washed drained weight (for packs with sauces) is different:

i) maintain the container at a temperature between 20 °C and 30 °C for a minimum of 12 hours prior to examination,
ii) open and tilt the container and wash the covering sauce and then the full contents with hot tap water (approx. 40 °C), using a wash bottle (e.g. plastic) on a tared circular sieve,
iii) wash the contents of the sieve with hot water until free of adhering sauce. Where necessary separate optional ingredients (spices, vegetables, fruits) with pincers. Incline the sieve at an angle of approximately 17 - 20 ° and allow the fish to drain two minutes, measured from the time the washing procedure has finished,
iv) remove adhering water from the bottom of the sieve by using paper. Weigh the sieve containing the washed drained fish, and
v) the washed drained weight is obtained by subtracting the weight of the sieve from the weight of the sieve and drained product.

3.3.2.3 *Removal of Contents – deglazed weight*

The glaze protects the product from contamination, preserves it longer, and also gives ”good looking” to the product.

Vessel with water: The temperature of the water should be 27 °C ± 1 °C, and the amount of water should be equal to at least 8 times the weight of sample taken on the sieve and of an appropriate temperature for the product (CODEX Standards may be used as guidance).

Open the package and pour the contents carefully across the mesh of the sieve(s), distributing them over the surface of the sieve, avoiding product damage. If the product contains caps or cavities, carefully invert by hand all parts which fall onto the sieve(s) with the cup or cavities facing upwards. Any solid material adhering to the container’s internal surfaces may be removed carefully with a spoon or similar implement and added to the contents of the sieve. Do not shake the material on the sieve.

Immerse sieve and test sample in the vessel containing the specified quantity of water until the end-point of glaze determination is reached, i.e. all of the added glaze has been removed and the still-frozen product core remains. It is important that product is not left in the warm water beyond this point to avoid any thawing of the core product with attendant "drip loss".

After all glaze that can be seen or felt is removed (i.e. when the external surface of the sample changes from "smooth" or "slippery" to "rough") and the sample separates easily, remove sieve with sample.

Note 1: If there are significant clumps of product frozen together, this may well indicate that the product has not been properly stored, and has been subject to varying temperatures. Such temperature abuse can lead to water migration from the product and changes in the apparent glaze level. Samples showing such "clumping" should not be accepted for analysis.

Note 2: There are frozen products without glaze, packed in vacuum, so that the film of plastic packaging surrounding the product offers protection given by the glaze.

3.3.2.4 *Draining*

Tilt the sieve(s) to an angle of 17 ° - 20 ° from the horizontal to facilitate draining.

Allow to drain for 2 minutes from the time at which all the product is on the sieve, or for the washed and deglazed products 2 minutes from the time the washing or deglazing ceases.

3.3.3 Weighing

Reweigh the sieve plus contents (weight Pe_2). Calculate the drained quantity, the drained washed quantity or the deglaze quantity as follows:

$$P = Pe_2 – Pe_1$$

- where:

P is the quantity of the product,
Pe_1 is the tare weight of the clean sieve, and
Pe_2 is the weight of the sieve plus the product after draining.

4 Extent of filling and manner of marking containers

4.1 The methods used for the labelling, presentation (including packaging) and advertising of prepacked foodstuffs for sale to the ultimate consumer should not mislead the consumer to a material degree as to, amongst other things, the quantity of product.

4.2 Under Annex II of Directive 94/62/EEC on packaging and packaging waste, packaging shall be so manufactured that the packaging volume and weight is limited to the minimum adequate amount to maintain the necessary level of safety, hygiene and acceptance for the packed product and for the consumer.

4.3 In order to meet the labelling objective, the nominal drained weight (which includes, if applicable, the deglazed weight) or the nominal drained washed weight shall be indicated on the container label, and shall[11] be described as "drained weight" or “drained washed weight” respectively. The indication shall be expressed in grams (g) or in kilograms (kg) and shall be in the same proximity and the same font and point size as the nominal weight declared on the container.

Note 1: The quantity may also be stated by number where permitted in domestic legislation, for example number for glazed oysters.

4.4 In order to meet the presentational and minimum packaging objectives, the drained weight indicated on the container (nominal drained weight or nominal drained washed weight) shall comply, on average, with one of the percentages provided in Table 4, which are expressed as a percentage of the container capacity (see Annex I of this guide).

Note 2: See "Sources of information" at the end of Table 4.

Note 3: The percentages may not be achievable for product with large particle sizes packed in small capacity cans, e.g. Whole Potatoes and Sliced/Whole Carrots.

Table 4: Minimum Nominal Drained Weights (expressed as a percentage of the capacity of the container – glass jars minus 20 ml)

Product	Container Capacity ml	Drained Weight %[12]	Source	Method	Sieve mesh mm
Fruit					
Apricots Whole	All	46	OEITFL	Drained	2.5
Apricot Halves – Heavy Syrup	All	54	CODEX	Drained	2.5
Apricot Halves – Light Syrup	All	55	CODEX	Drained	2.5
Bilberries	All	37	OEITFL	Drained	2.5
Blackberries	All	37	OEITFL	Drained	2.5
Blackcurrants	All	37	OEITFL	Drained	2.5
Broken Mandarin Segments	All	58	CODEX	Drained	2.5
Chestnuts	≥ 300	60	CODEX	Drained	2.5
Chestnuts	< 300	55	CODEX	Drained	2.5
Cranberries	All	37	OEITFL	Drained	2.5
Fruit Cocktail	All	60	CODEX	Drained	2.5
Fruit Salad	All	56	OEITFL	Drained	2.5
Fruits of the Forest	All	40	GMP	Drained	2.5
Gooseberries	All	52	OEITFL	Drained	2.5

[11] Drained washed weight is not legally required (see scope of this document)
[12] This percentage is calculated from the weight of water the container will hold. This percentage may not be attainable for large products packed in small quantities.

Product	Container Capacity ml	Drained Weight %[12]	Source	Method	Sieve mesh mm
Grapefruit Segments	All	50	CODEX	Drained	2.5
Grapes	All	40	OEITFL	Drained	2.5
Loganberries	All	35	OEITFL	Drained	2.5
Mandarin Oranges	All	55	CODEX	Drained	2.5
Mangoes	All	55	CODEX	Drained	2.5
Morello Cherries with Stones	All	52	OEITFL	Drained	2.5
Morello Cherries without Stones	All	50	OEITFL	Drained	2.5
Peach Halves/Slices – Heavy Syrup	All	57	CODEX	Drained	2.5
Peach Halves/Slices – Light syrup	All	59	CODEX	Drained	2.5
Pears Whole	All	50	CODEX	Drained	2.5
Pears Other variants	All	53	CODEX	Drained	2.5
Pears Diced	All	60	CODEX	Drained	2.5
Pineapple Crushed	All	63	CODEX	Drained	2.5
Pineapple Other variants	All	58	CODEX	Drained	2.5
Plums Whole	All	50	CODEX	Drained	2.5
Plums Halves	All	55	CODEX	Drained	2.5
Prunes	All	55	OEITFL	Drained	2.5
Raspberries	All	37	CODEX	Drained	2.5
Redcurrants	All	37	OEITFL	Drained	2.5
Rhubarb in Syrup	All	42	OEITFL	Drained	2.5
Strawberries	All	35	CODEX	Drained	2.5
Sweet Cherries with Stones	All	55	OEITFL	Drained	2.5
Sweet Cherries without Stones	All	52	OEITFL	Drained	2.5
Tomatoes Whole	All	50	CODEX	Drained	11.2
Tomatoes Chopped	All	50	CODEX	Drained	4.75
Tropical Fruit Salad	All	50	CODEX	Drained	2.5
Two Fruits (fruit macedoine)	All	56	OEITFL	Drained	2.5
White Heart Cherries with Stones	All	56	OEITFL	Drained	2.5
White Heart Cherries without Stones	All	55	OEITFL	Drained	2.5
White currants	All	37	OEITFL	Drained	2.5
Vegetables, Cereals and Pulses					
Adzuki Beans	All	55	GMP	Drained	2.5
Asparagus Long Shoots Peeled	All	60	CODEX	Drained	2.5
Asparagus Shoots Unpeeled	All	58	CODEX	Drained	2.5
Asparagus Other Styles Peeled	All	57	CODEX	Drained	2.5
Asparagus Other Styles Unpeeled	All	55	CODEX	Drained	2.5
Beetroot Whole	All	56.5	OEITFL	Drained	2.5
Beetroot Sliced	All	56.5	OEITFL	Drained	2.5
Beetroot Diced	All	56.5	OEITFL	Drained	2.5
Blackeye Beans	All	55	GMP	Drained	2.5
Borlotti Beans	All	55	GMP	Drained	2.5
Broad Beans	All	62.5	OEITFL	Drained	2.5
Brown Lentils	All	62.5	OEITFL	Drained	2.5
Butter Beans	All	55	GMP	Drained	2.5
Cannelini Beans	All	55	GMP	Drained	2.5
Carrot and Turnip Dices	All	52	GMP	Drained	2.5
Carrots Baby	All	56.5	OEITFL	Drained	2.5
Carrots Diced	All	56.5	OEITFL	Drained	2.5
Carrots Sliced	All	56.5	OEITFL	Drained	2.5
Carrots Whole	All	56.5	OEITFL	Drained	2.5

Product	Container Capacity ml	Drained Weight %[12]	Source	Method	Sieve mesh mm
Celery Cut	All	59	OEITFL	Drained	2.5
Celery Hearts	All	62.5	OEITFL	Drained	2.5
Celery Stalks	All	62.5	OEITFL	Drained	2.5
Celery Shredded	All	52	OEITFL	Drained	2.5
Chick Peas	All	57	GMP	Drained	2.5
Dark Red Kidney Beans	All	57	GMP	Drained	2.5
Flageolet Beans	All	55	GMP	Drained	2.5
Garden Peas	All	59	OEITFL	Drained	2.5
Gherkins Whole (fresh pack)	All	53	CODEX	Drained	2.5
Gherkins Whole (cured)	All	55	CODEX	Drained	2.5
Gherkins Sliced (fresh pack)	All	55	CODEX	Drained	2.5
Gherkins Sliced (cured)	All	57	CODEX	Drained	2.5
Green Lentils	All	62.5	OEITFL	Drained	2.5
Green / Wax Beans Whole	All	50	CODEX	Drained	2.5
Green / Wax Beans Sliced	All	46.5	OEITFL	Drained	2.5
Green / Wax Beans Cut	All	48	OEITFL	Drained	2.5
Haricot Beans < 15 mm	All	62.5	OEITFL	Drained	2.5
Haricot Beans 15 mm to 25 mm	All	59	OEITFL	Drained	2.5
Haricot Beans > 25 mm	All	54	OEITFL	Drained	2.5
Haricot Beans with Vegetables	All	55	GMP	Drained	2.5
Lentils and Vegetables	All	55	GMP	Drained	2.5
Lentils	All	62.5	OEITFL	Drained	2.5
Marrowfat Peas	All	56.5	GMP	Drained	2.5
Mixed Diced Vegetables	All	62.5	GMP	Drained	2.5
Mixed Pickles	All	50	GMP	Drained	2.5
Mixed Pickles in Sauce	All	50	GMP	Washed	2.5
Mushrooms Whole	All	53	CODEX	Drained	2.5
Mushrooms Sliced	All	53	CODEX	Drained	2.5
Mushrooms Chopped	All	53	CODEX	Drained	2.5
Mushrooms in Sauce	All	27.5	CODEX	Washed	2.5
Onions Chopped	All	55	GMP	Drained	2.5
Onions (pickled)	All	50	GMP	Drained	2.5
Peas and Carrots	All	60	GMP	Drained	2.5
Peas and Sweetcorn	All	60	GMP	Drained	2.5
Pinto Beans	All	55	GMP	Drained	2.5
Potatoes Whole	All	59.5	OEITFL	Drained	2.5
Potatoes Cut	All	59.5	OEITFL	Drained	2.5
Processed Peas	All	60	CODEX*	Drained	2.5
Processed Peas and Vegetables	All	55	GMP	Drained	2.5
Soya Beans	All	55	GMP	Drained	2.5
Red Cabbage (pickled)	All	45	GMP	Drained	2.5
Silverskin Onions (pickled)	All	52	OEITFL	Drained	2.5
Spinach Leaf	All	59.5	OEITFL	Drained	2.5
Sweet Corn	All	61	CODEX	Drained	2.5
Yellow Peas and Vegetables	All	55	GMP	Drained	2.5
Yellow Split Peas	All	62.5	OEITFL	Drained	2.5
Fish, Meat and Others					
Crab in Brine	All	63	GMP	Drained	2.5
Crabmeat in Brine	All	63	GMP	Drained	2.5
Hot Dog Sausages	All	46	GMP	Drained	2.5

Product	Container Capacity ml	Drained Weight %[12]	Source	Method	Sieve mesh mm
Mackerel in Oil	All	70	GMP	Drained	2.5
Mackerel in Tomato Sauce	All	70	GMP	Washed	2.5
Mackerel in Brine or Water	All	70	GMP	Drained	2.5
Pickled Eggs	All	52.5	GMP	Drained	2.5
Sardines in Oil	All	70	EU STD	Drained	2.5
Sardines in Brine or Water	All	70	EU STD	Drained	2.5
Sardines in Tomato Sauce	All	65	EU STD	Washed	2.5
Shrimps in Brine	All	63	GMP	Drained	2.5
Tuna Steak in Oil	All	65	EEC STD	Drained	2.5
Tuna Steak in Brine or Water	All	70	EEC STD	Drained	2.5
Tuna Chunks in Oil	All	65	EEC STD	Drained	2.5
Tuna Chunks in Brine or Water	All	70	EEC STD	Drained	2.5
Tuna Flake in Oil	All	65	EEC STD	Drained	2.5
Tuna Flake in Brine or Water	All	70	EEC STD	Drained	2.5

*) This CODEX value is quoted as an alternative to the solids content of the product (not less than 19.5% of the weight of demineralised water which the sealed container will hold when completely filled) which is the reference method.

5 Sources of information

The sources of the minimum nominal drained weight values quoted in Table 4 have been selected in the order of precedence (unless specific national derogations to CODEX figures have been established through OEITFL).

1. Codex Alimentarius Standards (CODEX).
2. Association of European Fruit and Vegetable Processing Industries (OEITFL) Standards.
3. Council regulation (EEC) 2136/89 of 21/6/1989 laying down common marketing standards for preserved sardines.
4. Council Regulation (EEC) 1536/92 of 9/6/1992 laying down common marketing standards for preserved Tuna and Bonito.
5. Commission Regulation (EEC) No 1010/2001 laying down minimum quality requirements for mixed fruit and CAC Codices for fruits and vegetables (e.g. for canned apricots CODEX Stan 129-1981).
6. Recommended values which are considered to represent good manufacturing practices (GMP).

Annex 1 Minimum nominal drained weights

This is expressed as a percentage of the container capacity.

A.1 Capacity of a container (container volume)

A.1.1 The basis for the determination should be calculated on the weight of demineralised water at 20 °C which the closed container will hold when completely filled.

A.1.2 Open Top Cans

The determination is to be carried out in accordance with EN/ISO 90-1:1999 Light gauge metal containers. Definitions and determination of dimensions and capacities. Part 1: Open top cans.

A.1.3 Glass Containers

The determination is to be carried out in accordance with the method for brimful capacity detailed in “Determination of Water Capacity of Containers” CAC/RM 46-1972 last amended 2002. The basis for the determination should be calculated on the weight of demineralised water at 20 °C which the closed container will hold when completely filled less 20 ml.

Note 1: This CODEX document assumes that the density of water at 20 °C is 1 g/ml to calculate an approximation of the volume.

Annex 2 Contact Details for Competent Departments Responsible for Compliance with the Metrological Requirements of Drained Weight

The information in this annex is correct at the date of publication. Up to date information is to be found at www.welmec.org

Code Country	**Contact person Name**	**Address**	**Phone number**	**Fax number**	**e-mail and Internet address for legislation**
AT/ Austria	No specific national regulator				
BE/ Belgium	Federal Public Service Economy, SMEs, Self employed and Energy, Directorate General Quality and Safety, Regulation and Control policy, Metrology, att.: Mr. Antoon Malfrere	Koning Albert II-laan 16, B-1000 Brussel Belgium	+32 2 277 71 00	+32 2 277 54 37	antoon.malfrere@economie.fgov.be http://economie.fgov.be
BG/ Bulgaria	State Agency for Metrological and Technical Surveillance – Directorate General “Metrological supervision”, att: Mrs. Pavleta Hristova Mrs. Tanya Tsankova	52A, G M Dimitrov Blvd. 1797 Sofia Bulgaria	+359 2 987 92 29	+359 2 939 67 01	Pavleta.Hristova@damtn.government.bg Tanya.Tsankova@damtn.government.bg www.damtn.government.bg
CY/ Republic of Cyprus	Ministry of Commerce, Industry and Tourism/ Technology Service/ Weights and Measures Service att: Mrs Niki Pythara Mr Efraimis Christofi	6, Andreas Araouzos Street, 1421 Lefkosia Cyprus	+35 22 409 366	+35 22 375 735	npythara@cys.gov.cy echristofi@mcit.gov.cy www.mcit.gov.cy
CZ / Czech Republic	Czech Trade inspection Authority att.: Mr. Milan Bousa	Štěpánská 15, 120 00 Prague 5 Czech republic	+420 296 366 360	+420 296 366 236	mbousa@coi.cz http://www.coi.cz
DK/ Denmark	No information				

Code Country	Contact person Name	Address	Phone number	Fax number	e-mail and Internet address for legislation
EE (EST) / Republic of Estonia	Estonian Technical Surveillance Authority att: Mr. Priit Poschlin	Sõle 23a, 10614 Tallinn, Estonia	+372 667 200	+372 667 201	metro@tja.ee www.tja.ee
FI/ Finland	No information				
FR/ France	No information				
DE/ Germany	No information				
GR/ Greece	A. Dessis	Ministry of Economy, Competitiveness and Seafaring Directorate of Metrology Canning Square, GR-10181, Athens, Greece	+30210 3837438	+30210 3301789	legmetro@gge.gr
HU/ Hungary	only for foodstuffs: att: Gábor Kelemen	Ministry of Agriculture and Rural Development Dep. of Food Chain Development H-1055 Budapest Kossuth L. tér 11.	+36 1 301 4383	+36 1 301 4808	Gabor.Kelemen@fvm.gov.hu
IS/ Iceland	Neytendstofa att.: Bjarni Bentsson	Borgartún 21, 105 Reykjavik Iceland	+354-510 1100	+354-510 1101	bjarni@neytendastofa.is http://www.neytendastofa.is/
IE/ Ireland	No information				
IT/ Italy	No information				

Code Country	Contact person Name	Address	Phone number	Fax number	e-mail and Internet address for legislation
LV/ Latvia	Consumer Rights Protection Centre of the Republic of Latvia att.: Mrs. Inese Velina	157, Kr.Valdemara St. Riga, LV-1013, Latvia	+371 673 39 883	+371 673 88 634	Inese.Velina@ptac.gov.lv www.ptac.gov.lv
LT/ Lithuania	State Metrology Service att: Gerda Krukonienė	Algirdo str. 31, Vilnius LT-03219	+370 5 213 3338	+370 5 216 3469	gerda.krukoniene@lvmt.lt
LU/ Luxemburg	ILNAS – Service de Métrologie légale att.: Mr.John Kirchen	rue J.F. Kennedy, L-7327 Steinsel Luxemburg	+352 33 55 07	+352 33 55 03	john.kirchen@ilnas.etat.lu
MT/ Malta	Joseph Bartolo	MCCAA-SMI Kordin Business Incubation Centre, Industrial Estate, Kordin, PLA 3000 - Malta	00356 21661794/ 00356 23980177	00356 23980178	Joseph-anthony.bartolo@mccaa.org.mt www. mccaa.org.mt
NL/ Netherland	VWA att: Jan Eliëns	Postbus 2168 5600 CD Eindhoven	+31 40 291 15 00	+31 40 291 16 00	zd@vwa.nl
NO/ Norway	(*): In the Norwegian legislation, there are other authorities than Justervesenet who are responsible for the implementation into legislation. However, Justervesenet can still be the contact person, responsible for passing on questions to the actual authority. att.: Fride Overrein Susegg	Justervesenet Fetveien 99, 2007 Kjeller Norway	+47 64 84 84 84	+47 64 84 84 85	fos@justervesenet.no http://www.lovdata.no
PL/ Poland	Office of Commercial Quality Control att. Ms Aleksandra Szymańska	Ul. Wspólna 30, PL 00-930 Warszawa Poland	+48 22 6232 900	+48 22 6232 999	aszymanska@ijhars.gov.pl
PT/ Portugal	Metrología Legal -Instituto Português da Qualidade att.: Mr Filipe Pinto Machado	R.C. à Avenida dos Três Vales, 2825 Monte da Caparica Portugal	+351 21 294 8174	+351 21 294 8188	pmachado@ipq.pt

Code Country	Contact person Name	Address	Phone number	Fax number	e-mail and Internet address for legislation
RO/ Romania	Romanian Bureau of Legal Metrology att.: mr. Patasanu Valentin mr. Corneliu Dragomir	Vitan Barzesti street, no.11, Bucharest, Romania	+40 1 332 09 54	+40 1 332 06 15	patasanuvalentin@brml.ro dragomircorneliu@brml.ro www.brml.ro
SK/ Slovak Republic	No information				
SI/ Slovenia	Ministry of Agriculture, Forestry and Food	Dunajska 58, SI-1000 Ljubljana Slovenia	+386 1 478 90 00	+386 1 478 90 21	gp.mkgp@gov.si
ES/ Spain	Centro Español de Metrologia att.: José Luis Manchado Trugillo att: Belén Martin	C/del Alfar, 2 28760 - TRES CANTOS(Madrid) Spain	+34 918 07 47 41	+34 91 807 47 07	jlmanchado@cem.mityc.es bmblasco@cem.mityc.es
SE/ Sweden	No information				
CH/ Switzerland	Federal Institute of Metrology METAS att.: Hans-Peter Vaterlaus	Lindenweg 50 CH-3084 Wabern Switzerland	+41 58 387 0304	+41 58 387 0210	hans-peter.vaterlaus @metas.ch http://www.metas.ch
GB/ United Kingdom	Metrology Communities of Practice att.: Howard Burnett	Inchmurrin High Street, Wookey, WELLS Somerset BA5 1JZ	+44-1749 673 741 Or +44 -7711 654 456		ask@howardburnett.com http://www.opsi.gov.uk/stat.htm

Associate Members					
Code Country	**Contact person Name**	**Address**	**Phone number**	**Fax number**	**e-mail & Internet address for legislation**
HR / Republic of Croatia	State Office for Metrology (DZM) att: Gordana Vivoda	Ulica grada Vukovara 78 10000 Zagreb Croatia	+385 1 610 63 20	+385 1 610 93 20	gordana.vivoda@dzm.hr http://www.dzm.hr
TR / Turkey	Ministry of Science, Industry & Technology, DG for Metrology & Standardisation Prepackaged Section att: Mehmet TETİK - Murat TAŞCI	Necatibey Street No:49 Floor:4 Ankara TURKEY	+90 312 2317280 / 1284	+90 312 2311694	mehmet@sanayi.gov.tr address for legislation murat.tasci@sanayi.gov.tr http://www.sanayi.gov.tr
MK / FYROM	No information				
RS / Serbia	No information				
YU / Montenegro	Tamara Boskovic	Bureau of Metrology Vasa Raickovica 18 81000 Podgorica	+382 20 238 230	+382 20 238 240	tamara_boskovic@yahoo.com
BA/ Bosnia and Herzegovina	No information				
AL / Albania	No information				