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Quantity of product in prepackages

Quantité des préemballages

ORGANISATION INTERNATIONALE
DE MÉTROLOGIE LÉGALE

INTERNATIONAL ORGANIZATION
OF LEGAL METROLOGY

Contents

Foreword

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Quantity of product in prepackages

1 Scope

This Recommendation specifies the:

- Legal metrology requirements for prepackaged products (also called prepackaged commodities or prepackaged goods) labeled in predetermined constant nominal quantities of weight, volume, linear measure, area, or count; and
- Sampling plans and procedures for use by legal metrology officials in verifying the quantity of product in prepackages.

Note: The sampling plans are not for use in the quantity control processes of prepackagers.

Informative Annexes include an examination procedure outline, procedures for determining average tare weight, the drained quantity of products in liquid medium, and the actual quantity of frozen products. Also included is a mandatory Annex on misleading prepackages.

2 Terminology

2.1 Actual quantity

Actual quantity of product that a prepackage in fact contains as determined by measurements made by legal metrology officials.

2.2 Average error

Sum of individual prepackage errors considering their arithmetic sign divided by the number of prepackages in the sample [1].

2.3 Content of a prepackage

Actual quantity of product in a prepackage.

2.4 Inadequate prepackage (also called a **non-conforming prepackage**)

Prepackage with an individual prepackage error (see 2.5) less than the nominal quantity (also called a negative error).

2.4.1 T1 error

An inadequate prepackage found to contain an actual quantity less than the nominal quantity minus the tolerable deficiency allowed in 4.2.3 for the nominal quantity is called a *T1* error.

$$T1 \text{ error: Actual contents} < (Q_n - T)$$

2.4.2 T2 error

An inadequate prepackage found to contain an actual quantity less than the nominal quantity minus twice the tolerable deficiency for a nominal quantity allowed in 4.2.3 is called a *T2* error.

$$T2 \text{ error: Actual contents} < (Q_n - T2)$$

2.5 Individual prepackage error

Difference between the actual quantity of product in a prepackage and its nominal quantity.

2.6 Inspection lot (also called a **batch**)

Definite quantity of prepackages produced at one time under conditions that are presumed to be uniform and from which a sample is drawn and inspected to determine conformance with specified criteria for acceptance or rejection of the inspection lot as a whole.

2.7 Misleading prepackage

Prepackage that is made, formed, presented, marked or filled in any way that may mislead a consumer about the quantity of contents that it contains.

2.8 Nominal quantity

Quantity of product in a prepackage declared on the label by the packager.

Note 1: The symbol 'Q_n' is used to designate the nominal quantity.

Note 2: The nominal quantity must be declared in accordance with OIML R 79 [4].

2.9 Packing material
(also called **individual package**, **tare**, **packaging** or **packaging material**)

Everything of the prepackage that is intended to be left over after use of the product, except for items naturally in the product. Use includes consumption or subjecting to a treatment.

Note: Packing material is generally used to contain, protect, handle, deliver, preserve, transport, inform about and serve as an aid (e.g. food serving tray) while using the product it contains.

2.10 Prepackage

Combination of a product and the packing material in which it is prepacked.

2.11 Prepackaged product

Single item for presentation as such to a consumer, consisting of a product and the packing material into which it was put before being offered for sale and in which the quantity of product has a predetermined value, whether the packing material encloses the product completely or only partially, but in any case in such a way that the actual quantity of product cannot be altered without the packing material either being opened or undergoing a perceptible modification.

2.12 Random sampling

Sample prepackages are chosen randomly (i.e. they all have the same probability to be included in the sample).

2.13 Sample size

Prepackages taken from an inspection lot and used to provide information that will serve as the basis for a decision on the conformance of the inspection lot.

Note: The symbol '*n*' means sample size.

2.14 Tolerable deficiency
(also called the **tolerable negative error**)

Deficiency in the quantity of product permitted in a prepackage. See 4.2.3, 2.1 and 2.4.

Note: The symbol '*T*' means tolerable deficiency.

3 Metrological requirements for a prepackage

A prepackage shall meet the requirements below at any level of distribution including at the point-of-pack, import, distribution and wholesale transactions, and sale (e.g. where a prepackage is offered or exposed for sale or sold).

3.1 Average requirement

The average actual quantity of product in a prepackage in an inspection lot shall be at least equal to the nominal quantity. The criteria in Clause 4 shall be met if the average actual quantity of product in a prepackage of an inspection lot is estimated by sampling.

3.2 Individual prepackage requirement

The actual quantity of product in a prepackage shall accurately reflect the nominal quantity but reasonable deviations shall be allowed (see 4.2.3). An inspection lot shall be rejected if it contains:

- More prepackages that exceed the tolerable deficiencies (see 2.4.1) than allowed in column 4 of Table 1; or
- One or more inadequate prepackages that are *T2* errors (see 2.4.2 and 4.2.3).

4 Reference test for metrological requirements

Legal metrology officials shall conduct tests to determine if prepackages comply with the requirements of this and other Recommendations (e.g. R 79 [4]). The tests may be performed in accordance with quality acceptance inspection by sampling prepackages at any level of distribution including at the point-of-pack, import, distribution and wholesale transactions, and sale.

The expanded uncertainties at the 95 % confidence level associated with measuring instruments and test methods used for determining quantities shall not exceed 0.2 *T*. Examples of the source of uncertainty include the maximum permissible error and repeatability in weighing and measuring instruments, variations in prepackage materials, and fluctuations in density determinations caused by the differing amounts of solids in the liquid or temperature changes.

This Recommendation does not preclude a legal metrology official from conducting any other test at any level of distribution for the purpose of verifying that prepackages meet the requirements of this or any other Recommendations.

Legal metrology officials may permit reasonable deviations in the quantity of product (i.e. hygroscopic products) caused by ordinary and customary exposure to environmental conditions that occur in storage and distribution in the evaluation of both the average and individual prepackage requirements.

4.1 Statistical and general principles of control

4.1.1 Criteria

The tests for acceptance or rejection of inspection lots shall take three parameters into consideration:

- The average error of the quantity of product in a prepackage in the sample;
- The percentage of prepackages in the sample that contain a quantity of product less than $Q_n - T$ is less than 2.5 % (also called a *T1* error). This is equal to the requirement that an inspection lot shall be rejected if the sample includes more inadequate prepackages which contain a quantity of product less than $Q_n - T$ than permitted in column 4 of Table 1 (called a *T1* error); and
- That an inspection lot must be rejected if one or more inadequate prepackages in the sample contains a quantity of product less than $Q_n - T2$ (called a *T2* error).

An inspection lot is:

- Accepted if it satisfies the requirements fixed for the three parameters above; or
- Rejected if it does not satisfy one or more of the requirements.

4.1.2 Significance level of the tests for the Type I Risk [1]

The significance level (the value which is the upper limit of this type of error) shall be 0.005. The tests shall determine if the average of the quantity of product in a prepackage has a one-sided significance level of 99.5 % using coefficients as derived from Student's *t* distribution:

$$\alpha_p \leq 0.5 \text{ \% for } \mu = Q_n$$

That is, the probability of rejecting a correctly filled inspection lot with $\mu = Q_n$ shall not exceed 0.5 %.

The test for Type I Risk [1] shall have a significance level α_p of:

$$\alpha_p \leq 5 \text{ \% for } p = 2.5 \text{ \%}$$

that is, the probability (p) of rejecting a inspection lot containing 2.5 % of inadequate prepackages shall not exceed 5 %.

4.1.3 Significance level of the tests for the Type II Risk [1]

In at least 90 % of the cases the tests shall detect inspection lots:

- For which the average fill is less than ($Q_n - 0.74\ \sigma$) where σ is the sample standard deviation of the quantity of product in the prepackages of the inspection lot; and
- Which contain 9 % of inadequate prepackages.

4.2 Characteristics of the sampling plans used in market surveillance by Legal Metrology Officials

Inspection lots shall be assumed to be homogeneous if there is no indication to the contrary.

Sample prepackages shall be selected using random sampling.

4.2.1 Inspections carried out on the premises of the packer

An inspection lot taken from the production line shall consist of all prepackages not rejected by a checking system. Care shall be taken to prevent other than normal operating adjustments or other corrective actions in the production and prepackage filling process. Sample prepackages must be collected after the point of final checking by the packer.

When sample prepackages are:

i) Collected from the production line: the size of the inspection lot shall be equal to the maximum hourly output of the production line without any restriction as to the inspection lot size;

ii) Not collected from the production line at the premises of the packer, and when:

- The production line output exceeds 10 000 prepackages per hour: the size of the inspection lot shall be equal to the maximum hourly output of the production line without any restriction as to the inspection lot size; or
- The production line output is 10 000 or fewer prepackages per hour: the inspection lot size shall not exceed 10 000 prepackages.

4.2.2 Inspection lot and sampling characteristics

See Table 1.

4.2.3 Tolerable deficiencies

For all prepackages, the tolerable deficiencies *(T)* are specified in Table 2 (see also 2.4).

No prepackage shall have a negative error greater than twice the tolerable deficiency (*T2*) specified in the previous paragraph. (See 2.4 and 3.2 regarding the disposition of an inspection lot).

Table 1 Sampling plans for prepackages

Inspection lot size	**Sample size** (n)	**Sample correction factor** $(t_{1-\alpha}) \times \frac{1}{\sqrt{n}}$	**Number of prepackages in a sample allowed to exceed the tolerable deficiencies in 4.2.3 (see also 2.4.1)**
100 to 500	50	0.379	3
501 to 3 200	80	0.295	5
> 3 200	125	0.234	7

Table 2 Tolerable deficiencies in actual content for prepackages

Nominal quantity of product (Q_n) in g or mL	**Tolerable deficiency *(T)*** [a]	
	Percent of Q_n	**g or mL**
0 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	-
10 000 to 15 000	-	150
15 000 to 50 000	1	-

[a] *T* values are to be rounded up to the next 1/10 of a g or mL for $Q_n \leq 1\,000$ g or mL and to the next whole g or mL for $Q_n > 1\,000$ g or mL.

Nominal quantity of product (Q_n) in length	**Percent of Q_n**
$Q_n \leq 5$ m	No tolerable deficiency allowed
$Q_n > 5$ m	2

Nominal quantity of product (Q_n) in area	**Percent of Q_n**
All Q_n	3

Nominal quantity of product (Q_n) in count	**Percent of Q_n**
$Q_n \leq 50$ items	No tolerable deficiency allowed
$Q_n > 50$ items	1 [b]

[b] Compute the value of *T* by multiplying the nominal quantity by 1 % and rounding the result up to the next whole number. The value may be larger than 1 % due to the rounding but this is accepted because the products are whole items and cannot be divided.

Annex A
Outline of examination procedure
(Informative)

A.1 General

This outline may be used to develop test procedures for checking the quantity of product in prepackages to ensure compliance with Clause 3.

A.2 Procedure

1) Define the inspection lot according to 4.2.

2) Determine a sample size appropriate for the inspection lot from column 1 of Table 1.

3) Determine the tolerable deficiency (*T*) appropriate for the nominal quantity of the prepackages according to 4.2.3.

4) Determine the number of prepackages allowed to exceed the tolerable deficiency from column 4 of Table 1.

5) Measure (see Notes 1 and 2 below) and record the gross weight for each prepackage to be opened for tare determination. Determine the average tare weight using the procedures in Annex B.

Note 1: This step is followed only when gravimetric testing is used.

Note 2: Packages with protective gas or vacuum packages shall be opened before weighing.

6) Determine the individual prepackage error using either i) or ii) below.

i) If gravimetric testing is used, compute the calculated gross weight (CGW) that may be used for computing individual prepackage errors as follows (See Note 1):

CGW = Average weight of the packing material + Nominal quantity of product in the prepackage (See Note 2).

Determine individual prepackage errors by subtracting the CGW from the actual gross weight of each prepackage.

Individual prepackage error =
Actual gross weight – CGW

Note 1: This method is only a recommendation; any accurate method of computing individual prepackage errors (e.g. ii) below) is acceptable.

Note 2: When gravimetric testing is used to determine the actual contents of prepackages of fluids labeled in units of volume, the nominal quantity of liquid product in the prepackage is the nominal volume multiplied by the density of a measured volume of the liquid at a reference temperature. The internationally recommended temperature is 20 °C for the volume declaration of liquids that are not frozen.

When a gravimetric method of test related to weights of a density of 8.0 g/mL is used, a quantity of product expressed in units of volume can be calculated practically using the formula below:

$$\text{Volume} = 0.99985 \times \frac{\text{Weight of the product}}{\text{Liquid density} - 0.0012}$$

ii) Determine the actual quantity of the product and subtract from it the nominal quantity (Q_n) of product to calculate the individual prepackage error.

7) Determine if the test results meet the individual prepackage requirement.

Compare each negative individual prepackage error obtained in step 6 above to the values for *T* in 4.2.3.

i) If the absolute value of a negative individual prepackage error is greater than the tolerable deficiency specified in 4.2.3, a prepackage is inadequate (see 2.4).

ii) If the number of inadequate prepackages exceeds the total permitted in column 4 of Table 1, or if any inadequate prepackage with a negative individual prepackage error greater than *T2* (see 2.4) is found, the sample fails the individual prepackage requirement. If the sample meets these requirements, proceed to the next step.

8) Determine if the test results meet the average prepackage requirement.

To calculate the total prepackage error (TPE), sum the individual prepackage errors obtained in step 6 above. Divide the TPE by the sample size to calculate the average error (AE). If the AE is a positive number, the sample (inspection lot) passes. If the AE is a negative number, calculate the sample error limit (SEL) as follows:

i) Compute the sample standard deviation.

ii) Compute the sample error limit (SEL) by multiplying the sample standard deviation (*s*) times the sample correction factor (SCF) shown in column 3 of Table 1 for the sample size in column 2.

SEL = Sample standard deviation (s) × SCF

iii) Add the SEL to the AE.

- If the sum is a positive number, the sample (and inspection lot) passes; or
- If the sum is a negative number, the sample (and inspection lot) fails.

A.3 Additional resources for test methods

For examples of test methods for a wide variety of products in different prepackages, see the following articles or OIML publications:

1 Russing, J.: Special methods for testing of certain types of prepackages such as sparkling beverages, aerosols, ice cream (OIML Bulletin - Number 96, September 1984).

2 Dalm, J.A, and Hogervorst, P.: Density measurement - Guidance for inspectors (BIML, March 1987).

Annex B
Tare procedures
(Informative)

B.1 General

These procedures permit the use of either used or unused dry tare to determine the actual quantity of product in the prepackage as follows:

Actual quantity of product =
Weight of the prepackage – Average weight of the packing material

B.2 Terminology

B.2.1 Unused dry tare

Weight of unused packing material of one prepackage.

B.2.2 Used dry tare

Packing material that has been used as part of a prepackage and that has been separated from the product and cleaned using normal household procedures used by consumers of the product (e.g. the material should not be dried in an oven).

B.3 Procedure

1) Determine the quantity of either the unused dry tare or used dry tare.

2) Randomly select an initial tare sample of 10 or more packing materials (see 2.9) (e.g. from the sample taken from an inspection lot or from a lot of packing materials at the point-of-pack) and measure the weight of each packing material in accordance with Clause 4.

3) Determine the average tare weight (ATW) and the sample standard deviation of the initial tare sample and proceed according to one of the criteria in Table B 1.

Table B.1 Tare

If	Then
The ATW is ≤ 10 % of the nominal quantity of product	Use the ATW to determine the actual quantity of product in the prepackages according to A.2 step 7.
The ATW is > 10 % of the nominal quantity and $s < 0.25 \times T$	Use a total of 25 packages to compute the ATW and determine the actual quantity of product in the prepackages according to A.2 step 7.
The ATW is > 10 % of the nominal quantity and $s > 0.25 \times T$	An ATW cannot be used. It is necessary to determine and to consider every individual tare weight. Determine the actual quantity of product in each prepackage according to A.2 step 7.

Annex C
Drained quantity of products packed in a liquid medium
(Informative)

C.1 General

This procedure can be used to determine the drained quantity of product in a liquid medium and can be applied to prepackages with nominal quantities up to 50 kg. When a prepackage contains solid goods in a liquid medium there are three possibilities:

- The liquid medium is intended to be left over after use (e.g. cucumbers in vinegar water). The term "content of the prepackage" (equals "quantity of the product") applies to the solid products. In this case the solid products are those contained in the prepackage excluding the packing material and the liquid medium. In this instance the "packing material" (everything that is intended to be left over after use) includes the liquid medium. The "content of a prepackage" is just the solid product.
- The liquid medium is not intended to be left over after use (e.g. liquor with raisins, and also fruit juice with pulp). The term "content of the prepackage" (equals "quantity of the product") applies to the solid products and the liquid medium. In this instance the "packing material" (everything that is intended to be left over after use) does NOT include the liquid medium. The "content of a prepackage" is the solid product together with the liquid medium. This Annex is not applicable to these products.
- The liquid medium might or might not be left over after use (e.g. sweetened juice with fruits, or fish in oil). The definition of packing material does not distinguish between the liquid medium and the goods. For instance, a recipe on the label could clarify if the liquid medium "is meant to be left over after use" or not. In this case the quantity of solids and the quantity of liquid medium could be on the label.

Note: The CODEX *General standard for the labelling of prepackaged foods"* (CODEX STAN 1-1985) (published by the Codex Alimentarius Commission (CAC) of the Food and Agriculture Organization (FAO) of the United Nations) requires in 4.3.3 *Net contents and drained weight* that "a food packed in a liquid medium shall carry a declaration....of the drained weight of the food".

C.2 Terminology

C.2.1 Actual contents

Quantity of product in a prepackage after equilibrium of solution process is established and the liquid medium is drained according to C.5.

C.2.2 Liquid medium

Means the following products, possibly in mixtures and also when 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.

C.2.3 Nominal quantity

Quantity of product in a prepackage less the liquid medium (see 2.9 and C.1).

C.3 Procedure for determining the actual quantity of product

Apply the requirements of Clause 3 *Metrological requirements for prepackages*.

Unless sampling periods are given in C.6, sampling shall be performed when the products are ready to be marketed according to the manufacturer or at any time later than 30 days after sterilization, pasteurization or similar process. Select a sample of prepackages in accordance with 4.2.

The samples shall be stored for a period of 12 hours before testing within the temperature range specified by the packer or between 20 °C and 24 °C.

C.4 Apparatus

For draining the product from a prepackage, use a flat sieve with a square mesh of 2.5 mm (wire thickness 1.12 mm). The diameter of this sieve should be 20 cm for use with prepackages of 850 mL or less, and 30 cm for use with containers over 850 mL. If the nominal quantity is 2.5 kg or more, the quantity may, after weighing the whole amount, be divided among several sieves.

Note: For standardized sieves see ISO 3310-1 *Test sieves - Technical requirements and testing - Part 1: Test sieves of metal wire cloth.*

For determination of quantity, a weighing instrument shall meet the requirements of Clause 4.

C.5 Determining the actual quantity of product of a sample

1) Determine the sieve's weight.

2) 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. Tilt the sieve to an angle of 17° to 20° from the horizontal to facilitate draining. Carefully invert by hand all solid product, or parts thereof, which have hollows or cavities if they fall on the sieve with the hollows or cavities facing upwards. Drain the hollows or cavities in soft products (e.g. sliced fruit) by tilting the sieve. Allow a 2 minute drain time.

3) Reweigh the sieve plus contents and calculate the drained quantity as follows:

$$P = P_{e2} - P_{e1}$$

where: P = drained quantity of the product

P_{e1} = weight of the clean sieve

P_{e2} = weight of the sieve plus product after draining

Note: 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. See also C.6.

C.6 Recommended periods of time for checking drained weight

See examples in Table C.1.

Table C.1 Recommended periods of time for checking drained weight

Product	Period of time for checking	
	From	To
Fruit, vegetable and other vegetable foodstuffs (except for strawberries, raspberries, blackberries, kiwis, loganberries)	30 days after sterilization	Tenability
Strawberries, raspberries, blackberries, kiwis, loganberries	30 days after sterilization	2 years after sterilization
Products out of salted fish, anchovies, marinades, stewed fish goods, preserved fish, mussels, shrimps, etc.	Immediately after pouring on	14 days after pouring on
Marinades of fried fish	48 hours after pouring on	14 days after pouring on
Small sausages and other meat products	5 days after sterilization	Tenability
Other products	14 days after pouring on	Tenability

Annex D

Test procedures for determining the actual quantity of frozen products

(Informative)

Apply the requirements of Clause 3 *Metrological requirements for prepackages*.

D.1 Frozen fruits and vegetables

1) Determine the (gross) weight of the prepackage and immerse it in water maintained at 20 °C (± 1 °C) with a continuous water flow (if the prepackage is not water-tight, place it in a plastic bag and remove any excess air using a vacuum and then seal it securely). Avoid agitating the prepackage while it is thawing. When all of the ice has melted, remove it from the water bath and wipe it dry. Open the prepackage with care and a minimum of agitation.

2) Determine the weight of a sieve with 2.36 mm square openings and its drain pan. For prepackages with a nominal quantity up to 1.4 kg, transfer the product to a 20 cm diameter sieve, or use a 30 cm diameter sieve for prepackages with a nominal quantity greater than 1.4 kg. With the sieve tilted approximately 17° to 20° from the horizontal to facilitate drainage, distribute the product evenly over the sieve in one sweeping motion. Drain for 2 minutes then transfer the sieve containing the product to the pre-weighed drip pan and determine the actual drained quantity of the product.

D.2 Glazed seafood (seafood that is covered with a film of water and then frozen to preserve its quality)

The actual quantity of the seafood shall be exclusive of the glaze.

1) Remove the product from the prepackage and place it under a gentle spray of cold water until the ice glaze is removed. Agitate the product with care to avoid damage.

2) Transfer the product to a 20 cm diameter sieve with 2.36 mm square openings for prepackages with nominal quantities of 900 g or less, or use a 30 cm diameter sieve for prepackages greater than 900 g. Incline the sieve to approximately 17° to 20° from the horizontal to facilitate drainage without shifting the product. Drain for 2 minutes and then transfer the product to a pan that has been pre-weighed. Determine the actual drained quantity of product.

D.3 Frozen shrimp and crabmeat

1) To thaw the product, use a water bath and a wire mesh basket large enough to hold the contents of a prepackage and with openings small enough to retain the product. Place the product in the basket and immerse it in the water bath (e.g. a 15 L container of water) at 26 ± 1 °C so that the top of the basket extends above water level. Introduce water at the same temperature at the bottom of the container at a flow rate of 4 – 11 L/min until the product thaws, as determined by loss of rigidity.

2) Transfer the product to a 20 cm in diameter sieve with 2.36 mm square openings for prepackages up to 450 g, or use a 30 cm diameter sieve for prepackages greater than 450 g. Without shifting the product on the sieve, incline the sieve to approximately 30° from the horizontal to facilitate drainage. Drain for 2 minutes and then transfer the product to a pan that has been pre-weighed. Determine the actual drained quantity of product.

Annex E
Prohibition of misleading prepackages
(Mandatory)

E.1 General

A prepackage shall not have a false bottom, sidewalls, lid or covering, nor be constructed or filled, wholly or partially, in such a way that may deceive the consumer.

E.2 Terminology

E.2.1 Slack fill

Difference between the actual capacity of the packing material and the volume of product it contains. Slack fill may be necessary for the following reasons:

- Protection of the product;
- The requirements of machines used for enclosing the contents of the prepackage;
- Unavoidable product settling during shipping and handling; and
- The need for the prepackage to perform a specific function (e.g. where packaging plays a role in the preparation or consumption of a food), where such a function is inherent to the nature of the product and is clearly communicated to consumers.

E.2.1 Nonfunctional slack fill

Empty space in a prepackage when the prepackage is filled to less than its capacity. If a consumer cannot fully view the product in a prepackage, it shall be considered to be filled. A prepackage with excessive nonfunctional slack fill is considered to be a misleading one.

E.3 Aerosol dispensers

The percentage (grade) of fill by volume of aerosol dispensers shall be as required in Annex III of European Directive 80/232/EEC [3]. (See also OIML R 79 [4], 6.1–6.3).

See Table E.1 on page 16.

Table E.1 Capacities of aerosol dispensers

Volume of the liquid phase in mL	Container capacities in mL for:	
	Products propelled by liquid gas	(a) Products propelled by compressed gas alone. (b) Products propelled by nitrous oxide or carbon dioxide alone or by mixtures of the two alone when the product has a Bunsen Coefficient of 1.2 or less.
25	40	47
50	75	89
75	110	140
100	140	175
125	175	210
150	210	270
200	270	335
250	335	405
300	405	520
400	520	650
500	650	800
600	800	1000
750	1000	

References

[1] The statistical terminology is consistent with the vocabulary of ISO 3534-1: 1993 *Statistics - vocabulary and symbols - Part 1: Probability and general statistical terms*.

[2] *Guide to the expression of uncertainty in measurement*, first edition, 1993, corrected and reprinted 1995, International Organization for Standardization (Geneva, Switzerland).

[3] Council Directive 80/232/EEC of 15 January 1980 on the approximation of the laws of the Member States relating to the ranges of nominal quantities and nominal capacities permitted for certain prepackaged products. (OJ L 51, 25 February 1980, 7 pages).

[4] OIML R 79 *Labeling requirements for prepackaged products*. OIML, Paris, 1997.

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