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# INTERNATIONAL STANDARD

# ISO 6741-1

Second edition
1989-07-01

## Textiles — Fibres and yarns — Determination of commercial mass of consignments

## Part 1:
Mass determination and calculations

*Textiles — Fibres et fils — Détermination de la masse commerciale d'un lot — Partie 1: Détermination de la masse et modes de calcul*

Reference number
ISO 6741-1 : 1989 (E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6741-1 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This second edition cancels and replaces the first edition (ISO 6741-1 : 1987), of which it constitutes a minor revision. The only change of any technical significance is in the drying temperature specified for silk in table 1.

ISO 6741 consists of the following parts, under the general title *Textiles — Fibres and yarns — Determination of commercial mass of consignments*:

— *Part 1: Mass determination and calculations*

— *Part 2: Methods for obtaining laboratory samples*

— *Part 3: Specimen cleaning procedures*

— *Part 4: Values used for the commercial allowances and the commercial moisture regains* (Technical Report)

Annexes A, B and C form an integral part of this part of ISO 6741. Annex D is for information only.

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# Introduction

Most contracts of sale between buyer and seller specify either that the invoice mass of a consignment shall be determined by an independent third party, or that the seller's figure may be subject to an independent third-party check. ISO 6741, parts 1 to 3, describes the methods which are to be used by the independent third party in these cases. The figure for the commercial mass which results from the application of the procedures in this part of ISO 6741 either becomes the invoice mass of the consignment or is compared with the declared invoice mass plus or minus the tolerance agreeed between the buyer and seller.

It is not intended that the methods in this part of ISO 6741 necessarily be used by the seller to establish his invoice mass.

The methods described in this part of ISO 6741 are, for the most part, destructive.

The terminology used in this and other parts of ISO 6741 is in accordance with ISO 6348.

INTERNATIONAL STANDARD ISO 6741-1 : 1989 (E)

# Textiles — Fibres and yarns — Determination of commercial mass of consignments —

# Part 1:
# Mass determination and calculations

## 1 Scope

This part of ISO 6741 specifies methods for the determination of the commercial mass of homogeneous consignments of those textile fibres and yarns composed of a single generic species listed in part 4.

The methods specified in this part of ISO 6741 do not apply to beamed yarns, to coated yarns, to fibres and yarns put up for retail sale or to fibre blends.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6741. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6741 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 139 : 1973, *Textiles — Standard atmospheres for conditioning and testing.*

ISO 1130 : 1975, *Textile fibres — Some methods of sampling for testing.*

ISO 3074 : 1975, *Wool — Determination of dichloromethane-soluble matter in combed sliver.*

ISO 3534 : 1977, *Statistics — Vocabulary and symbols.*

ISO 5089 : 1977, *Textiles — Preparation of laboratory test samples and test specimens for chemical testing.*

ISO 6348 : 1980, *Textiles — Determination of mass — Vocabulary.*

ISO 6741 : 1987, *Textiles — Fibres and yarns — Determination of commercial mass of consignments*

- *Part 2: Methods for obtaining laboratory samples.*
- *Part 3: Specimen cleaning procedures.*
- *Part 4: Values used for the commercial allowances and the commercial moisture regains* (Technical Report).

## 3 Principle

The commercial mass of a consignment is the calculated mass that a consignment of textile material would have if either the mass corresponding to the commercial moisture regain was added to the dried mass of the material or the mass corresponding to the commercial allowance was added to the extracted and dried mass of the material.

The following operations are necessary to determine commercial mass:

a) take a representative consignment sample;

b) either determine the net mass of the consignment or determine the net and invoice masses of each container in this consignment sample;

c) assemble laboratory samples from the contents of each container in the consignment sample (in accordance with ISO 6741-2);

d) weigh and, if necessary, sub-divide each laboratory sample;

e) clean each laboratory sample by washing, extraction with an organic solvent or pyrolysis (in accordance with ISO 6741-3);

f) dry each laboratory sample;

g) determine the clean dry mass (or the dry mass) of each laboratory sample;

h) calculate the commercial mass of the consignment.

In some circumstances, operation c) precedes operation b); operation e) may sometimes be omitted.

When the commercial mass of a consignment is determined by drying without cleaning, use the procedure outlined in annex C if the commercial mass is to be adjusted to a specified extractibles content.

## 4 Definitions

Terms and definitions relating to mass determination of textiles are given in ISO 6348; those for sampling are given in ISO 5089, ISO 1130 and ISO 3534.

For the purposes of this part of ISO 6741, the following definitions also apply:

**4.1 consignment:** All the containers of a textile material of one defined type and quality, delivered to one customer according to one dispatch note.

**4.2 container:** Units of packaging within the consignment (a carton, a case, a bale, etc.) the identification of which is quoted explicitly on the dispatch note. Containers may or may not contain packages (see 4.4).

**4.3 global sample:** A sample obtained by a technique in which the laboratory sample is assembled by aggregating all the samples taken by partial sampling or by total sampling.

**4.4 net mass:** The mass of the textile material alone, obtained by subtracting the tare from the gross mass.

**4.5 package:** Elementary units (which can be unwound) within each container in the consignment. They might be bump top, hanks, skeins or supports on to which have been wound tow, top, sliver, roving, yarn or cord.

**4.6 partial sampling:** A consignment sampling technique in which the laboratory sample is assembled from samples taken from selected treatment containers in the consignment. The samples are kept separate for further treatment.

**4.7 support:** A former on to which textile material may be wound.

**4.8 total sampling:** A consignment-sampling technique in which a separate laboratory sample is taken from every container in the consignment. The samples are kept separate for further treatment.

## 5 Apparatus

### 5.1 Weighing instruments

a) for containers, capable of weighing containers in the consignment with an accuracy of 0,1 %;

b) for samples, capable of weighing masses in the range 10 g to 500 g with an accuracy of 0,05 %.

**5.2 Air-tight vessels,** of low hygroscopicity and known mass, capable of holding the material being tested. For example, a stoppered glass jar or a clean, grease-free polyethylene bag of a minimum thickness 70 µm, sealed inside a second similar polyethylene bag, is sometimes used. In the latter case, the bags shall be sealed and free of holes.

**5.3 Drying apparatus,** capable of drying samples under the conditions specified in table 1. A ventilated drying oven or apparatus designed for forced-air drying with or without a built-in balance is suitable. The air flow close to the sample shall have a speed of not less than 0,2 m/s and preferably not more than 1 m/s.

NOTE — Details of precautions necessary when using an external balance are given in annex D.

A forced-air drying oven shall not be used for acrylic fibre.

The air entering the oven shall be the standard atmosphere for testing specified in ISO 139. The procedure in annex A may be used when this is not possible.

## 6 Procedure

If the consignment comprises more than one type of container or support, treat each homogeneous group as a separate consignment.

Set aside and report all the containers in the consignment which show any signs of damage or unusual dampness incurred in the course of transport, as well as any that have been opened. The commercial mass of such containers shall be determined by methods agreed between the interested parties.

**Table 1 — Drying conditions**

| Material | Oven temperature °C | Specified drying duration |
|---|---|---|
| Acrylic | 110 ± 2 | 2 h ± 1 %[1] |
| Chlorofibre | 77 ± 2 | Dry to constant mass. |
| Silk | 140 ± 2 | |
| Textile glass | Pyrolysis necessary, see ISO 6741-3. | |
| All other fibres | 105 ± 2 | Dry to constant mass. |

1) See paragraph 2 in 5.3.

### 6.1 Determination of the net mass or the invoice mass of the consignment

If the commercial mass determined in accordance with this part of ISO 6741 is to become the invoice mass of the consignment, determine the net mass of the consignment by weighing every container in the consignment (see 6.4) and establishing the total net mass of the consignment:

total net mass = gross mass — total tare.

If, however, the purpose is to check the declared invoice mass, then ensure that the invoice mass of the consignment and of each container in the consignment is available.

### 6.2 Selection of the consignment sample

When the commercial mass determined by the methods in this part of ISO 6741 is to become the invoice mass of a consignment, the consignment sample shall comprise either all the containers in the consignment (total sampling) or a selection of the containers in the consignment (partial sampling).

When the commercial mass determined by the methods in this part of ISO 6741 is to be used as a check of the invoice mass of a consignment, total sampling may not be necessary: partial sampling can be employed in conjunction with an eventual check that sufficient containers have been sampled.

The number of containers to be selected for sampling depends upon the expected variability of the moisture content of the material in the containers. Where this is unknown or high, sample all the containers (total sampling); where it is low, select fewer containers (partial sampling). In the latter case, however, there are circumstances in which the sampling of additional containers becomes necessary, so it is recommended that from a first selection of containers some be taken for immediate sampling whilst the remainder are set aside for use if needed.

#### 6.2.1 Total sampling method (see 4.8)

Sample all the containers.

#### 6.2.2 Partial sampling method (see 4.6)

Make a first selection of containers in accordance with table 2 at random from the consignment. Sub-divide the first selection into a consignment sample and a reserve. Set aside the reserve for possible future sampling (see clause 7).

#### 6.2.3 Global sample (see 4.3)

If a global sample is required, assemble the laboratory sample by aggregating all the samples obtained in accordance with 6.2.1 or 6.2.2.

### 6.3 Determination of the net mass of the contents of each container in the consignment sample

Determine the gross mass (i.e. the mass of textile fibre or yarn, external and internal wrapping materials, container and yarn supports) of each container by weighing, to an accuracy of 0,1 %, using the weighing instrument [5.1 a)].

Determine the tare of each container (i.e. the sum of the masses of all the packaging and all the yarn supports) to an accuracy of 0,1 % or use the declared tare.

If there are more than 10 containers in the consignment sample, it is sufficient to determine an average tare on the following basis:

| | |
|---|---|
| Bale wrappers: | 1 in 10 containers with a minimum of 3 |
| Sacks and packages: | 2 per 1 000 kg of fibre |
| Wooden cases and/or handling pallets: | All |
| Cartons: | 1 in 5 containers |

If the containers contain individually supported or wrapped packages (for example, bobbins of yarn, wrapped bump tops), take the tare of each support or wrapping in the container to be the mean mass of the supports or wrappings of those packages which are actually sampled.

Calculate the net mass of each container:

Net mass = gross mass — tare (or average or declared tare).

NOTE — The laboratory sample is normally included in the measure of the net mass of the textile material. Its exclusion should be agreed between the interested parties.

**Table 2 — Number of containers in the consignment sample**

| Number of containers in the consignment | Number of containers in the first selection of the consignment sample | Number of containers to be sampled |
|---|---|---|
| up to 5 | all | all |
| from 6 to 10 | all | 5 |
| from 11 to 25 | 10 | 5 |
| more than 25 | 20 | 10 |

### 6.4 Assembly of the laboratory sample

Select and use the appropriate method in ISO 6741-2 according to the nature of the textile material and the manner in which it is packaged.

Immediately seal the sample in one or more of the air-tight vessels (5.2), unless laboratory operations on that sample are to commence immediately.

### 6.5 Weighing and sub-dividing the laboratory sample

If a global sample has been prepared, and if that sample is not already sub-divided, quickly divide it into at least two approximately equal parts weighing not less than 100 g.

Determine the gross mass of each laboratory sample in its air-tight vessel; calculate the net mass by deducting the mass of the vessel. Omit this procedure if method H of ISO 6741-2 has been used for package sampling.

Should either the cleaning apparatus (if employed) or the drying oven (5.3) be unable to accommodate the laboratory sample without sub-division, divide the laboratory sample into as many approximately equal test specimens as required.

There will result one or more test specimens for each laboratory sample.

When the consignment comprises containers which carry a number of skeins, the following procedure may in certain circumstances[1)] be adopted in order to simplify subsequent operations:

Open each air-tight vessel and quickly remove and randomly rearrange the individual skeins which they contain into eight groups. Weigh each group as soon as possible after opening the vessels, using the weighing instrument [5.1 b)]. There will result eight test specimens for the whole consignment.

### 6.6 Cleaning the test specimens

The cleaning method to be adopted depends upon the material. A variety of methods is set out in ISO 6741-3 and guidance on the appropriate method for specific materials is contained in ISO 6741-4. The selected method shall be agreed by the interested parties. Include details of the method used in the test report (see clause 8).

### 6.7 Drying the test specimens and determination of the oven-dry mass of the laboratory sample

Dry the specimens using the conditions set out in table 1. If no drying duration is specified, continue to dry until successive weighings at 15 min intervals (ventilated oven) or 5 min intervals (forced-air oven) show no mass change greater than 0,05 % of the specimen mass.

Determine the mass of the dry specimens by weighing to an accuracy of 0,05 %.

## 7 Calculation and expression of results

### 7.1 General

The commercial mass of the consignment is calculated (see 7.4) from its net mass or from its invoice mass.

NOTE — Values for the commercial allowance/commercial moisture regain to be used in the calculation are normally agreed between the parties to the contract of sale. In the absence of a specifically agreed figure, use, where appropriate, the value given in ISO 6741-4.

Use method I when the commercial mass as determined by the procedures in this part of ISO 6741 is to be used to establish the invoice mass of the consignment, and use method II to check the declared invoice mass of the consignment.

When sampling method G of ISO 6741-4 has been used, follow first the preliminary calculation described in annex B.

### 7.2 Calculation of the "correction factor"

#### 7.2.1 Notation

The following symbols are used in this clause:

$f_i$ is the correction factor for the $i$th container.

$R_c$ is the appropriate commercial allowance or commercial moisture regain.

$m_{og}$ is the total mass of the global sample before drying (or cleaning and drying).

$m_{si}$ is the mass of the dried (or cleaned and dried) laboratory sample from the $i$th container.

1) The appropriate circumstances are:

a) every container in the consignment has been sampled;

b) the consignment comprises containers of approximately equal mass;

c) the drying oven can accommodate a group of skeins;

d) no cleaning is required.

In such circumstances the ratio $\frac{m_{si}}{m_{oi}}$ in clause 7 can refer to groups of skeins rather than to specific laboratory samples and $F_1$ (or $F_2$) becomes the arithmetic mean of the $f_i$ values determined for these groups.

$m_{sg}$ is the total mass of the global sample after drying (or cleaning and drying).

$m_{oi}$ is the net mass of the laboratory sample from the $i$th container.

$M_{oi}$ is the net mass of the $i$th container, determined when the container was sampled.

$M_{ii}$ is the invoice mass of the $i$th container.

$n$ is the number of containers in the consignment sample.

#### 7.2.2 Method I: Net mass basis

NOTE — See clause 6.5 if the consignment consists of skeins.

##### 7.2.2.1 Separate laboratory samples

Calculate, for each laboratory sample

$$f_i = \frac{m_{si}}{m_{oi}} \times \frac{100 + R_c}{100}$$

where $1 \leqslant i \leqslant n$

Calculate the weighted mean value $F_1$ for the correction factor:

$$F_1 = \frac{\sum_{i=1}^{n} M_{oi} \times f_i}{\sum_{i=1}^{n} M_{oi}}$$

##### 7.2.2.2 Global samples

Calculate

$$F_1 = \frac{m_{sg}}{m_{og}} \times \frac{100 + R_c}{100}$$

#### 7.2.3 Method II: Invoice mass basis

Calculate, for each laboratory sample,

$$f_i = \frac{m_{si}}{m_{oi}} \times \frac{100 + R_c}{100} \times \frac{M_{oi}}{M_{ii}}$$

where $1 \leqslant i \leqslant n$

Calculate the weighted mean value $F_2$ for the correction factor:

$$F_2 = \frac{\sum_{i=1}^{n} M_{ii} \times f_i}{\sum_{i=1}^{n} M_{ii}}$$

NOTE — See clause 6.5 if the consignment consists of skeins.

### 7.3 Check that sufficient containers have been sampled

This check ensures that sufficient containers have been sampled. It is omitted when all the containers in the consignment have already been sampled. It ensures that, if the consignment is considered as a homogeneous population, there is only a 1 in 20 chance that the measured value for $F_1$ or $F_2$ differs by 0,5 % from the value which would be obtained by testing the whole consignment.

Calculate the unweighted mean value for the correction factor, and its variance:

Unweighted mean $F$

$$\frac{1}{n}\sum_{i=1}^{n} f_i$$

Variance $\sigma^2$

$$\frac{1}{n-1}\sum_{i=1}^{n} (f_i - F)^2$$

Locate in table 3 the value for $\sigma^2$ which is closest to the calculated value. If the corresponding value for $N$ in this table exceeds the number of samples actually tested ($n$), take ($N-n$) further samples to make up the difference. Take these samples from the reserve of the first selection or, if necessary, at random from the consignment. Note if there are insufficient containers in the consignment and immediately consult the interested parties about possible supplementary sampling.

### 7.4 Calculation of the commercial mass of the consignment

#### 7.4.1 Net mass basis

Commercial mass = Net mass of consignment × $F_1$

#### 7.4.2 Invoice mass basis

Commercial mass = Invoice mass of consignment × $F_2$

## 8 Test report

The test report shall state:

a) that the procedure used was in accordance with this part of ISO 6741;

b) the methods in ISO 6741-2 and ISO 6741-3 which were used for sampling and cleaning. If sampling method Z and/or cleaning method Z were used, append to the test report full details of the procedure(s) used;

c) if appropriate, that a global sample was used;

d) the number of containers in the consignment, and the number sampled and tested;

e) the arrangements (if any) made for supplementary sampling (see 7.3);

f) the calculated commercial mass of the consignment;

g) the invoiced mass of the consignment;

h) the value of the commercial allowance or the commercial moisture regain which was used in the calculation;

i) any additional details of the procedure.

NOTE — When the commercial mass is determined by an authorized testing house to become the invoice mass of the consignment, it is usual to issue a Conditioning Certificate rather than a test report.

**Table 3 — Number of samples $N$ required to give 95 % confidence limits of ± 0,5 % for various values of the variance $\sigma^2$**

| $N$ | $\sigma^2 \times 10^4$ | $N$ | $\sigma^2 \times 10^4$ |
|---|---|---|---|
| 5 | 0,162 | 13 | 0,683 |
| 6 | 0,227 | 14 | 0,750 |
| 7 | 0,291 | 15 | 0,818 |
| 8 | 0,359 | 16 | 0,881 |
| 9 | 0,421 | 17 | 0,945 |
| 10 | 0,489 | 18 | 1,010 |
| 11 | 0,553 | 19 | 1,077 |
| 12 | 0,619 | 20 | 1,141 |

# Annex A
(normative)

## Correction to oven dry mass for non-standard drying conditions

The air entering the oven should be the standard atmosphere for testing (see ISO 139). If this is not possible, the oven-dry masses may be corrected for the non-standard moisture content of the drying air by making the following approximate correction, the amount of which shall be stated in the test report:

Correction to the oven dry mass
$= 0{,}5\,(1 - 6{,}48 \times 10^{-4} \times p \times r)$ %

where

$r$ is the relative humidity per cent of the air entering the oven divided by 100;

$p$ is the saturation vapour pressure, in pascals, of the air entering the oven. This depends upon the temperature and atmospheric pressure. Values at standard pressure are given in table A.1.

Ignore any correction which is smaller than ± 0,05 %.

**Table A.1 — Saturation vapour pressure of air at standard pressure**

| Temperature °C | Saturation vapour pressure Pa | Temperature °C | Saturation vapour pressure Pa |
|---|---|---|---|
| 11 | 1 310 | 24 | 2 990 |
| 12 | 1 400 | 25 | 3 170 |
| 13 | 1 490 | 26 | 3 360 |
| 14 | 1 600 | 27 | 3 560 |
| 15 | 1 710 | 28 | 3 770 |
| 16 | 1 810 | 29 | 4 000 |
| 17 | 1 930 | 30 | 4 240 |
| 18 | 2 070 | 31 | 4 490 |
| 19 | 2 200 | 32 | 4 760 |
| 20 | 2 330 | 33 | 5 030 |
| 21 | 2 480 | 34 | 5 320 |
| 22 | 2 640 | 35 | 5 630 |
| 23 | 2 810 | | |

# Annex B
(normative)

## Preliminary calculation procedure for use when sampling method G (ISO 6741-2) has been adopted

Let the mass of the $i$th sampled package, as determined prior to reeling, be $m_{oi}$ in the calculation procedures described in clause 7.

Convert the clean, dry masses of the six samples of known length taken from each package into a weighted mean estimate of the clean, dry mass of the whole package in the following manner:

Calculate the clean, dry mass per unit length of each of the six samples by dividing their clean, dry masses by their previously determined lengths.

Assume that the mass per unit length of the portion of yarn between successive samples is the mean of the values determined for these samples and calculate the mass of each such length of yarn.

Add together

a) the measured clean dry masses of the six samples, and

b) the calculated clean dry masses of the five intervening lengths

to obtain the clean dry mass of the complete package.

Let this mass be $m_{si}$ in the calculation procedure described in clause 7.

# Annex C
(normative)

## Outline procedure for use when the commercial mass is to be adjusted to a specified non-volatile extractibles content

The following operations are necessary:

a) take a representative consignment sample;

b) determine the net mass of the consignment;

c) assemble two laboratory samples from the contents of each container in the consignment sample; one sample to be dried and the other to be extracted;

d) weigh and, if necessary, sub-divide each laboratory sample;

e) dry one of each pair of laboratory samples and determine its dried mass;

f) calculate the commercial mass of the consignment from the original and dried masses of the laboratory samples and the commercial moisture regain;

g) determine the mass of extractible material in the remaining laboratory samples;

h) adjust the commercial mass of the consignment to the specified extractibles content.

NOTE — It is sometimes necessary to include a correction for oil volatilization during drying.

When this procedure is used, the size of the sample submitted for the extractibles determination is usually smaller than the sample submitted for drying; the methods employed are the same as those described within the appropriate clauses of ISO 6741-1, ISO 6741-2 and ISO 6741-3, with the following exceptions:

ISO 6741-1, 6.5: Take two samples instead of one at each step and assemble the second samples into a single global sample for extractibles testing.

ISO 6741-1, 6.7: Omit cleaning.

ISO 6741-1, after 6.8: Insert the following procedure for extractibles determination:

Determine the mass of extractible material in the global sample using the method described in ISO 3074. Use of a solvent other than dichloromethane may be agreed between the interested parties.

Part 1, clause 7 : After determining the uncorrected commercial mass of the consignment add the following procedure:

Determine the cleaned and dried mass $(A - B)$ of the consignment as the difference between its dried mass $(A)$ and its extractibles content $(B)$, these being calculated as indicated below.

Determine the corrected commercial mass $(C)$ using both the agreed extractibles content $(R_x)$ and the agreed commercial moisture regain $(R_c)$.

$$A = \text{Uncorrected commercial mass} \times \frac{100}{100 + R_c}$$

$$B = \text{Mass of consignment when sampled} \times \frac{\text{mass of extractibles in sample}}{\text{mass of sample}}$$

$$C = (A - B) \times \frac{100 + R_c}{100} \times \frac{100 + R_x}{100}$$

where

$A$ is the dried mass of the consignment;

$B$ is the mass of extractible material in the consignment;

$C$ is the corrected commercial mass;

$R_c$ is the commercial moisture regain;

$R_x$ is the agreed extractibles content (in per cent).

# Annex D
(informative)

## Precautions for the hot weighing of samples on an external balance

Accurate hot weighing on a balance external to the dryer or heating oven is only possible if great care is taken to minimize the undesirable effects of conditions such as buoyancy and draughts.

In order to be sure of attaining the required precision, it is necessary to take the following precautions:

a) The balance should be enclosed by an open-fronted box and should be free from draughts.

b) The buoyancy correction value should be determined for the apparatus and containers in use. Pack steel wool cleaned in petroleum ether into a cold container to a density equivalent to that of the test specimen being tested. Determine the mass of the loaded container at room temperature. Heat the container on the drying equipment for 15 min and weigh hot. The difference between these two weighings is the sum of the buoyancy and convection effects and is the correction value to be added to hot weighing values on the particular apparatus. This correction value should be determined for each 10 °C step in the range of drying room air temperatures.

c) When determining the rate of drying by taking intermediate weighings, the time taken to complete a hot weighing should not exceed 20 s. In addition, the total time during which the sample is removed from the drying equipment should not exceed 30 s.

d) The containers which hold the test specimen during the drying and weighing should be as small and light as practicable. The shape of the container should be such as to avoid dead air space, i.e. air space surrounding the test specimen. Dead air spaces can cause variations in buoyancy effects.

e) Where a forced-air dryer is used, the containers should be fitted with mesh ends to retain the test specimen under the full force of the drying air and to prevent loss of short fibre.

f) To maintain a uniform temperature of 100 °C to 105 °C throughout the test specimen container, it is necessary to shroud the containers on the drier by a shield which ensures a flow of the exhaust air around the cans inside the shield.

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