
British Standard Methods for
**Determination of commercial mass
of consignments of textiles**

Part 1. Mass determination and calculations

[ISO title: Textiles — Fibres and yarns — Determination of commercial mass of consignments: Part 1
Mass determination and calculations]

Méthodes de détermination de la masse commerciale d'un lot de textiles
Partie 1. Détermination de la masse et modes de calcul

Verfahren zur Bestimmung des Handelgewichts bei Textilien
Teil 1. Massebestimmung und Berechnungen

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National foreword

This British Standard has been prepared under the direction of the Textiles and Clothing Standards Committee and forms a Part revision of BS 4784 'Method for the determination of the correct invoice mass (weight) of textiles' which is withdrawn.

This Part of BS 4784 is identical with ISO 6741-1 'Textiles — Fibres and yarns — Determination of commercial mass of consignments — Part 1: Mass determination and calculations' published in 1987 by the International Organization for Standardization (ISO).

The international standard comprises four Parts as follows:

- ISO 6741-1 Mass determination and calculations
- ISO 6741-2 Methods for obtaining laboratory samples
- ISO 6741-3 Specimen cleaning procedures
- ISO 6741-4 (Technical report) Values used for commercial allowances and the commercial moisture regains

Terminology and conventions. The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words 'International Standard' and 'part of ISO 6741' appear, referring to this standard, they should be read as 'British Standard' and 'Part of BS 4784', respectively.

Cross-references

International standard	Corresponding British Standard
ISO 139 : 1973	BS 1051 : 1981 Glossary of terms relating to the conditioning, testing and mass determination of textiles (section one) (Technically equivalent*)
ISO 1130 : 1975	BS 2545 : 1965 Methods of fibre sampling for testing (Technically equivalent)
ISO 3074 : 1975	BS 3582 : 1981 Methods of test for determination of oils, fats and waxes in wool (Technically equivalent)
ISO 3166 : 1981	BS 5374 : 1981 Specification for codes for the representation of names of countries (Identical)
ISO 3534 : 1977	BS 5532 Statistical terminology Part 1 : 1978 Glossary of terms relating to probability and general terms relating to statistics (Identical)
ISO 5089 : 1977	BS 4658 : 1978 Methods of test for textiles — Preparation of laboratory test samples and test specimens for chemical testing (Identical)
ISO 6348 : 1980	BS 1051 : 1981 Glossary of terms relating to the conditioning, testing and mass determination of textiles (section two) (Technically equivalent)
ISO 6741-2 : 1987	BS 4784 Method for determination of commercial mass of consignments of textiles Part 2 : 1988 Methods for obtaining laboratory samples (Identical)
ISO 6741-3 : 1987	Part 3 : 1988 Specimen cleaning procedures (Identical)

ISO 6741-4 : 1987 to which reference is made in the text is reproduced as national appendix A.

Textual error. When adopting the text of the international standard, the textual error given below was discovered.

It has been marked in the text and has been reported to the International Organization for Standardization in a proposal to amend the text of the international standard.

In table 1 the oven temperature for silk should be corrected to $140 \pm 2^{\circ}\text{C}$.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

*This British Standard glossary contains all the relevant information which, in the international standard, is written in terms of requirements.

British Standard Methods for

Determination of commercial mass of consignments of textiles

Part 1 Mass determination and calculations

0 Introduction

This document forms part 1 of a four-part International Standard prepared by ISO/TC 38, *Textiles*.

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.)

The terminology used in this International Standard is in accordance with ISO 6348.

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 agreed 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.

1 Scope and field of application

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 References

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

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

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

ISO 3534, *Statistics — Vocabulary and symbols*.

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

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

ISO 6741, *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 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 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.

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	105 ± 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 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.

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.

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

*See national foreword for details of textual error.