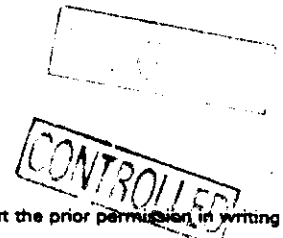


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## British Standard Methods for Determination of commercial mass of consignments of textiles Part 3. Specimen cleaning procedures

[ISO title: Textiles — Fibres and yarns — Determination of commercial mass of consignments — Part 3:  
Specimen cleaning procedures]

Méthodes de détermination de la masse commerciale d'un lot de textiles  
Partie 3. Méthodes de nettoyage des éprouvettes

Verfahren zur Bestimmung des Handelgewichts bei Textilien  
Teil 3. Verfahren zur Probenreinigung

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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a Part revision of BS 4784 'Method for the determination of the correct invoice mass (weight) of textiles' which is withdrawn.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 6741/3 'Textiles — Fibres and yarns — Determination of commercial mass of consignments — Part 3: Specimen cleaning procedures', 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 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 4793 : 1980	BS 1752 : 1983 Specification for laboratory sintered or fritted filters including porosity grading (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 6741-1 : 1987	BS 4784 Methods for determination of commercial mass of consignments of textiles Part 1 : 1988 Mass determination and calculations (Identical)
ISO 6741-2 : 1987	Part 2 : 1988 Methods for obtaining laboratory samples (Identical)

ISO 6741-4 : 1987 to which reference is made in the text is reproduced as national appendix A of BS 4784 : Part 1 : 1988.

ISO 675 and ISO 1833, to which references are made in 5.1.1 and 5.3, are supplied for information only and hence the lack of corresponding British Standards does not affect the validity of this standard. A related British Standard to ISO 1833 is BS 4407.

**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.

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British Standard Methods for

# Determination of commercial mass of consignments of textiles

Part 3 Specimen cleaning procedures

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## 0 Introduction

This document forms part 3 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. This part of ISO 6741 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 specimen cleaning procedures to be used when the commercial mass is to be determined in accordance with ISO 6741-1 on a clean and dry basis. The procedure appropriate for a particular fibre is given in ISO 6741-4.

If the commercial mass is to be determined on a dry-only basis, cleaning is omitted.

## 2 References

ISO 675, *Textiles — Woven fabrics — Determination of dimensional change on commercial laundering near the boiling point*.

ISO 1833, *Textiles — Binary fibre mixtures — Quantitative chemical analysis*.

ISO 4793, *Laboratory sintered (fritted) filters — Porosity, grading classification and designation*.

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

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

— Part 1: Mass determination and calculations.

— Part 2: Methods for obtaining laboratory samples.

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

## 3 Principle

The test specimen, obtained as specified in ISO 6741-1, following the procedures given in ISO 6741-2, is cleaned by the method recommended for the particular fibre in ISO 6741-4.

## 4 Apparatus and reagents

Conventional laboratory apparatus is required. All reagents used shall be chemically pure.

## 5 Procedures

NOTE — See sub-clause 6.5 of ISO 6741-1.

### 5.1 Methods A1 and A2: Washing with soap

Enclose the test specimen in an open-textured bag large enough when closed with a draw-tape to contain the material in

a loose state. The bag and its draw-tape shall be made of filament polyamide or polyester yarn and shall have been previously boiled in several lots of distilled water. The oven-dry mass of the bag and its contents shall be determined to an accuracy of 0,05 %.

#### 5.1.1 Method A1

Wash the test specimen (in the bag) at 70 to 75 °C in at least 25 times its own mass of a solution made by dissolving 5 g of soap flakes (the soap specified in ISO 675 is suitable) per litre of soft water, i.e. water of hardness not exceeding 5 mg of calcium carbonate per litre. Keep the specimen moving for 30 min in the solution, maintaining the temperature at 70 to 75 °C. Add more soft water at 70 to 75 °C, allowing the bath to overflow until all scum and foam have disappeared. Take the bag and its contents out of the bath and expel as much liquid as possible by centrifuging (preferably) or by squeezing. Rinse twice for 5 min in soft water at 85 °C, keeping the bag moving in the water. Finally, rinse for 5 min in demineralized water at 85 °C. Centrifuge (or squeeze) the specimen after each rinse.

#### 5.1.2 Method A2

Wash the test specimen (in the bag) in a boiling solution at least 25 times its own mass of a solution made by dissolving 2 g of sodium carbonate per litre of soft water, i.e. water of hardness not exceeding 5 mg of calcium carbonate per litre. Keep the specimen moving for 45 min in the boiling solution. Add more boiling water, allowing the bath to overflow until all scum has disappeared. Take the bag and its contents out of the bath and expel as much liquid as possible by centrifuging (preferably) or by squeezing. Rinse twice for 5 min in boiling water, keeping the bag moving in the water. Finally, rinse for 5 min in boiling demineralized water. Centrifuge (or squeeze) the specimen after each rinse.

#### 5.2 Method B : Washing with detergent

Proceed as in method A1 (5.1.1) but use a solution containing 5 g/l of the detergent specified in the annex in place of a soap solution.

#### 5.3 Method C : Extraction with light petroleum

Enclose the test specimen in an open-textured bag large enough when closed with a draw-tape to contain the material in a loose state. The bag and its draw-tape shall be made of filament polyamide or polyester yarn and shall have been previously extracted with light petroleum. The oven-dry mass of the bag and its draw tape shall be determined to an accuracy of 0,05 %.

Place the bag containing the test specimen into either a tared glass Soxhlet thimble fitted with a sealed-in sintered disc of porosity grade P 40 (see ISO 4793) or into a tared alumina Soxhlet thimble of porosity grade P 40.

Carry out an extraction in a Soxhlet apparatus with light petroleum (boiling range 40 to 60 °C) for 1 h at a minimum rate of six extraction cycles per hour.

Remove the thimble and contents from the extractor, attach them to a filter flask and remove the light petroleum by suction.

Place the thimble and contents in a Soxhlet apparatus and extract with water for 2 h at a minimum rate of six extraction cycles per hour. Remove the sample and centrifuge to remove excess water.

(This method is taken from ISO 1833.)

#### 5.4 Method D : Extraction with dichloromethane followed by size removal

Enclose the test specimen in an open-textured bag large enough when closed with a draw-tape to contain the material in a loose state. The bag and its draw-tape shall be made of unsized or fully desized cotton yarn and shall have been previously extracted with dichloromethane. The oven-dry mass of the bag and its draw tape shall be determined to an accuracy of 0,05 %.

Place the bag and its contents in a Soxhlet apparatus and extract with dichloromethane (methylene chloride) for at least ten cycles.

Remove the bag and test specimen and, after evaporation of the solvent, rinse by hand in two lots of soft water (hardness not exceeding 5 mg of calcium carbonate per litre) at 50 °C. Transfer to a solution of an enzyme preparation (a 0,05 % to 0,10 % diastatic solution at pH 6,0 to 7,5 is suitable) and maintain at 50 °C until all starchy matter has been shown to be hydrolysed by testing with a 0,5 % solution of iodine in potassium iodide.

Finally, wash the specimen in its bag by boiling for 5 min in soft water, cool it and squeeze it by hand. Repeat this last process to give six treatments in all. Centrifuge the sample in its bag to remove excess water.

#### 5.5 Method E : Extraction with methanol

Enclose the test specimen in an open-textured bag large enough when closed with a draw-tape to contain the material in a loose state. The bag and its draw-tape shall be made of filament polyester yarn and shall have been previously extracted with methanol. The oven-dry mass of the bag and its draw tape shall be determined to an accuracy of 0,05 %.

Transfer the bag containing the test specimen to a 200 ml Soxhlet apparatus and extract with methanol. The amount of methanol shall be at least 1,5 times the amount of one Soxhlet charge. Continue the extraction for ten cycles. Remove the specimen and centrifuge to remove excess methanol.

#### 5.6 Method F : Washing in soft or distilled water

Enclose the test specimen in an open-textured bag large enough when closed with a draw-tape to contain the material in a loose state. The bag and its draw-tape shall be made of filament polyester or polyamide yarn and shall have been previously boiled in several lots of distilled water. The oven-dry mass of the bag and its draw tape shall be determined to an accuracy of 0,05 %.

Wash the test specimen (in the bag) for 30 min with specimen agitation in at least 60 times its own mass of soft water (hardness not exceeding 5 mg of calcium carbonate per litre) at 60 to 70 °C. Remove the specimen, squeeze gently to expel as much

water as possible, place the specimen into a fresh supply of soft water at 60 to 70 °C, and agitate for a further 100 min. Rinse for 5 min in distilled water at 20 °C. Remove the specimen and squeeze gently to expel as much water as possible.

### 5.7 Method G: Cleaning by pyrolysis

**WARNING** — It is important that fumes do not enter the laboratory, causing a potential build-up of toxic volatile metals such as mercury, cadmium or antimony. Also, acrylic fibres on ashing produce the highly toxic gas hydrogen cyanide.

Place the test specimens on to specimen holders and put these assemblies into a muffle furnace maintained at a temperature of  $625 \pm 20$  °C. Leave to burn for 5 min with the furnace door open (see the note) and then for 30 min with the door closed.

**NOTE** — The open door allows volatile gases to escape without depositing on to either the test specimen or its holder the residual solids which the specimen may contain.

Remove the assemblies from the muffle furnace and place them in a desiccator. Allow them to cool to the temperature of weighing room (see ISO 139).

### Handling precautions

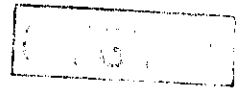
Do not allow the sample to come into contact with the oven. Transfer the assemblies from the oven to the balance with great care, in order to avoid any loss of material.

Never touch the sample with the fingers; always use tweezers.

If the yarn has been given a special size which cannot be completely removed by combustion, other desizing methods may be used by agreement between the interested parties.

### 5.8 Method Z: Other cleaning procedure

A method agreed between the interested parties for use only when the above cleaning methods are not suitable.



## Annex

## Detergent to be used in connection with method B

(This annex forms an integral part of the Standard.)

IEC test detergent with perborate, type 1, of the following formulation:

	% (m/m)
Linear sodium alkyl benzene sulfonate (mean length of alkane chain: C <sub>11,6</sub> )	6,4
Ethoxylated tallow alcohol (14 moles ethylene oxide)	2,3
Sodium soap (chain length C <sub>12</sub> to C <sub>22</sub> )	2,8
Sodium tripolyphosphate	35,0
Sodium silicate (SiO <sub>2</sub> /Na <sub>2</sub> O = 3,3/1)	6,0
Magnesium silicate	1,5
Sodium carboxymethylcellulose	1,0
Ethylenediamine-tetra-acetic acid sodium salt	0,2
Sodium sulfate (as accompanying substance or added)	16,8
Water	8,0
Sodium perborate (NaBO <sub>2</sub> ·3H <sub>2</sub> O·H <sub>2</sub> O <sub>2</sub> ) (freshly added to the above, immediately before use)	20,0

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### Committees responsible for this British Standard

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British Carpet Manufacturers' Association Ltd  
City of Bradford Conditioning House

Confederation of British Wool Textiles Limited  
Institute of Trading Standards Administration  
International Wool Secretariat  
Man-made Fibres Producers' Committee  
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