



DPC: 24 / 30489549 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: + 44 (0)20 8996 9000

Fax: + 44 (0)20 8996 7400

www.bsigroup.com

Date: 02 December 2024

Origin: National

Latest date for receipt of comments: 31 January 2025

Project No. 2024/00909

Responsible committee: CH/205 Non-active medical devices

Interested committees:

Title: BS 7505:2025, Elastic properties of flat, non-adhesive, extensible fabric bandages # Specification

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

**WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD.
THIS DRAFT IS NOT CURRENT BEYOND 31 January 2025**

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: + 44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <http://standardsdevelopment.bsigroup.com>

Responsible Editorial Project Manager: TRACEYJANE CLARKE

Direct tel:

E-mail: traceyjane.clarke@bsigroup.com

Introduction

Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international and European standards, comments will be reviewed by the relevant UK national committee before submitting the consensus UK vote and comments. If the draft standard is approved, it is usual for the resulting published standard to be adopted as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

Annotated drafts are not acceptable and will be rejected.

All comments should be submitted online at <http://standardsdevelopment.bsigroup.com>. You will need to register in order to comment.

Elastic properties of flat, non-adhesive, extensible fabric bandages – Specification

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on XX Month 202X. It was prepared by Technical Committee CH/205, *Non-Active Medical Devices*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

This British Standard supersedes BS 7505:1995, which is withdrawn.

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- a simplified method of sampling is specified, where only three samples are tested compared to three or five in the previous edition;
- two new definitions are included – ‘processor’ and ‘non adhesive bandages’, which clarifies that cohesive bandages are within the scope of the document;
- corrections to pressure values in Table 1 (which were out by a factor of 10 in the previous edition);
- a requirement to simulate the effect of clinical use when assessing washable bandages;
- additional labelling requirements for manufacturers of reusable bandages;
- expanded test report requirements;
- a rationale annex, which explains the history of the standard, explanations of the performance measures, and various other matters considered during the development of this document

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at bsigroup.com/standards, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Presentational conventions

The provisions of this document are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or

reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

In particular, attention is drawn to the following specific regulation:

- UK Textile Products (Labelling and Fibre Composition) Regulations [1].

1 Scope

This document specifies requirements for the elastic properties of flat, non-adhesive, extensible bandages and classifies the bandages according to their function and performance.

Flat, non-adhesive, extensible bandages are used for dressing retention, and/or the provision of support, and/or the application of compression.

NOTE 1 Although the application of a compression bandage is a major factor in the successful management of certain venous disorders, such bandages might cause serious injury if used inappropriately or if applied incorrectly.

This document covers the basic description of the products and their performance requirements. Purchasing authorities therefore might need to include additional information.

Many properties cannot be specified objectively and are not included in this standard.

NOTE 2 Examples of such properties include colour, appearance and details of additional features.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

BS EN ISO 139:2005+A1:2011, *Textiles. Standard atmospheres for conditioning and testing*

BS EN ISO 6330:2021, *Textiles – Domestic washing and drying procedures for textile testing*

BS EN ISO 7500-1:2018, *Metallic materials – Part 1: Calibration and verification of static uniaxial testing machines – Tension/compression testing machines – Calibration and verification of the force-measuring system*

3 Terms, definitions, and abbreviated terms

For the purposes of this document, the following terms and definitions apply.

3.1 differential extension factor (F)

the difference, expressed as a percentage of the length at the working tension, between the length at the maximum tension and the length at the working tension

3.2 maximum tension (T_1)

the tension (in newtons) to which the bandage is subjected during the test

NOTE 1 This can be calculated from the stated width and the value of the maximum tension per unit width $T_{\max}$ as given in Table A.1.

NOTE 2 $T_{\max}$ is expressed in newtons per centimetre width. T_1 is calculated from $T_{\max}$ using the stated width.

3.3 processor

natural or legal person who processes products so that their performance complies with the requirements of this document and with any appropriate regulatory requirements

(Source: BS EN 13795-1:2019, **3.9** (modified, “and with any appropriate regulatory requirements” added))

3.4 stated width

the nominal width of an unstretched bandage as stated on the label [see **6d**]

3.5 tension ratio(s)

the percentage of tension retained when the working length is reduced by 3%

NOTE This provides an indication of the variation in sub-bandage pressure that will result from small changes in limb circumference, such as will occur in walking.

3.6 working extension (E)

the increase in length, expressed as a percentage of the initial length, at which the bandage achieves its working tension

3.7 working length (L_2)

the standard length of the test specimen, at which the working tension is achieved

3.8 working tension (T_2)

the tension (in newtons) required to achieve the upper level of sub-bandage pressure relevant to the bandage type

NOTE 1 This can be calculated from the stated width and the value for the working tension per unit width T_w as given in Table A.1.

NOTE 2 T_w is expressed in newtons per centimetre width. T_2 is calculated from T_w using the stated width.

3.9 non-adhesive bandage

a bandage which is not designed to adhere to the skin.

NOTE A cohesive bandage which adheres to itself but not to other surfaces (including skin) is considered to be non-adhesive for the purposes of this standard.

4 Classification

Bandages specified in this British Standard shall be classified according to their function as given in Table 1 after determining their tension ratio, working extension and differential extension factor using the method in Annex A.

NOTE 1 The pressures indicated in Table 2 are calculated from Laplace's law using the method described in Annex C, assuming that the two layers of bandage have been applied with a uniform technique to a cylinder which is circular in cross section.

NOTE 2 Where bandaging techniques other than that of the simple ascending spiral are used, e.g. the figure-of-eight configuration, more than two layers of bandage are achieved and this will lead to higher levels of sub-bandage pressure than that indicated in Table 1 and Table 2.

NOTE 3 Certain bandages are designed to be applied in an ascending spiral with overlaps other than 50%, e.g. 66% (i.e. three layer bandaging). In such cases the tension levels in Table A.1 differ. Where alternative degrees of overlap format are used, multiply the tension figure in Table A.1 by two, then divide by the number of layers. For example, for a Type 2 bandage used at a 66% overlap, where Table A.1 specifies a $T_{\max}$ of 0.67 N, the Max Tension (in N/cm width) to be used in the test would be calculated as follows:

$$T_{\max} = \left(\frac{0.67 \times 2}{3} \right) = 0.45$$

NOTE 4 The effects of limb circumference and bandage tensions on sub-bandage pressure (assuming a 50% overlap resulting in two layers of bandage) are given in Table 2.

Table 1 – Bandage classification into types according to function

Bandage type	Description	Characteristics and function
1	Conforming stretch bandage	Bandage which conforms well to body contours and permits free movement of limbs and joints without applying significant sub-bandage pressure. Such bandages are designed to hold dressings in place and should not be used to apply compression.
2	Light support bandage	Bandage used to provide tissue support and to provide intermittent sub-bandage pressure.
3	Compression bandage	Bandage generally applied to reduce oedema and facilitate venous return in limbs with varying degrees of venous incompetence. The pressure developed beneath this type of bandage is directly proportional to the number of layers used and to the force with which the bandage is applied, but is inversely proportional to the diameter of the limb and bandage ^a width. Compression bandages can be subdivided into four groups, as follows, according to the levels of sub-bandage pressure that they are required to deliver. These are also known as long stretch bandages.
3A	Light compression bandage	Bandage able to achieve and maintain low levels of sub-bandage pressure, i.e. up to 2.7 kPa/(20 mmHg) on an ankle 23 cm in circumference, when applied with a 50% overlap.
3B	Moderate compression bandage	Bandage able to achieve and maintain low to moderate levels of sub-bandage pressure, i.e. up to 4.0 kPa/(30 mmHg) on an ankle 23 cm in circumference, when applied with a 50% overlap.
3C	High compression bandage	Bandage able to achieve and maintain moderate levels of sub-bandage pressure, i.e. up to 5.3 kPa/(40 mmHg) on an ankle 23 cm in circumference, when applied with a 50% overlap.
		<i>NOTE Bandages in this group are often used for the treatment and prevention of venous leg ulcers.</i>
3D	Extra high-compression bandage	Bandage able to achieve and maintain high levels of pressure, i.e. up to 8.0 kPa/(60 mmHg) on an ankle 23 cm in circumference, when applied with a 50% overlap

^a A bandage applied with constant tension will automatically provide graduated compression on a leg of normal dimensions with the highest pressure being produced at the ankle.

NOTE Pressure values are quoted in mmHg, but it is acknowledged that the SI units are in kPa. A conversion formula is provided in Annex B.