Draft for Public Comment

Form 36

DPC: 25/30466031 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: 22 July 2025
Origin: European

Latest date for receipt of comments: 14 September 2025

Project No. 2022/02692

Responsible committee: TCI/100 Co-ordination of activities in textiles and clothing

Interested committees:

Title: Draft BS EN ISO 11092 Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test).

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 14 September 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 https://standardsdevelopment.bsigroup.com/.

Responsible Committee Secretary: Miss Sarah Horsfield (BSI)
Direct tel: 020 8996 7142
E-mail: sarah.horsfield@bsigroup.com

Documents
Document Sharing Hub
Full document details: 25/30466031 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published 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 **https://standardsdevelopment.bsigroup.com/**. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex **(e.g. 3.1)**	Paragraph/ Figure/Table/Note	**Type of comment**	**Commend (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations on each comment submitted**
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

Documents
Document Sharing Hub

Full document details: 25/30466031 DC

DRAFT International Standard

ISO/DIS 11092

Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test)

Textiles — Effets physiologiques — Mesurage de la résistance thermique et de la résistance à la vapeur d'eau en régime stationnaire (essai de la plaque chaude gardée transpirante)

ICS: 59.080.01

ISO/TC **38**

Secretariat: **JISC**

Voting begins on:
2025-07-22

Voting terminates on:
2025-10-14

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENTS AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

Reference number
ISO/DIS 11092:2025(en)

© ISO 2025

Documents
Document Sharing Hub

Full document details: 25/30466031 DC

COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Documents
Document Sharing Hub
Full document details: 25/30466031 DC

Contents

Page

Foreword ... **iv**

Introduction ... **v**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**
3.1 thermal resistance Rct ... 1
3.2 water-vapour resistance R_{et} ... 2
3.3 water-vapour permeability index i_{mt} ... 2
3.4 water-vapour permeability W_d ... 2

4 Symbols and units ... **2**

5 Principle ... **3**

6 Apparatus ... **3**
6.1 Measuring unit, with temperature and water supply control, ... 3
6.2 Thermal guard with temperature control ... 5
6.3 Test enclosure ... 5

7 Test specimens ... **6**
7.1 Materials ≤ 5 mm thick ... 6
7.2 Materials > 5 mm thick ... 6

8 Test procedure ... **7**
8.1 Determination of apparatus constants ... 7
8.1.1 Determination of R_{ct0} ... 8
8.1.2 Determination of R_{et0} ... 8
8.1.3 Reference material ... 8
8.1.4 Recalibration ... 8
8.2 Assembly of test specimens on the measuring unit ... 9
8.3 Measurement of thermal resistance R_{ct} ... 9
8.4 Measurement of water-vapour resistance R_{et} ... 9

9 Precision of results ... **10**
9.1 Repeatability ... 10
9.2 Reproducibility ... 10

10 Test report ... **10**

Annex A (normative) **Mounting procedure for specimens containing loose filling materials or having uneven thickness** ... **12**

Annex B (normative) **Determination of correction terms for heating power** ... **13**

Annex C (informative) **Guidance on test specimen assembly for materials prone to swelling** ... **14**

Bibliography ... **16**

© ISO 2025 – All rights reserved

Documents
Document Sharing Hub
Full document details: 25/30466031 DC

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents.ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee, TC 38, *Textiles.*

This third edition cancels and replaces the second edition (ISO 11092:2014), which has been technically revised.

The main changes are as follows:

— Normative references were added as Clause 2

— In 8.1.2.1, the water supplied to the measuring plate was changed to Grade 3 water in accordance with ISO 3696:1987

— In 8.1.3, footnote 1 was deleted and replaced by a note

— In 9.1 and 9.2, the thermal resistance values have been changed to standard notation

— In 9.1, the precision is no longer only applicable to foams

— In clause 9.2, the reproducibility of the water vapour resistance values has been updated based on the results from the round robin test in 2025

— Bibliography has been added for the informative reference in 9.2

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2025 – All rights reserved

Documents
Document Sharing Hub
Full document details: 25/30466031 DC

Introduction

This document is the first of a number of standard test methods in the field of clothing comfort.

The physical properties of textile materials which contribute to physiological comfort involve a complex combination of heat and mass transfer. Each may occur separately or simultaneously. They are time-dependent, and may be considered in steady-state or transient conditions.

Thermal resistance is the net result of the combination of radiant, conductive and convective heat transfer, and its value depends on the contribution of each to the total heat transfer. Although it is an intrinsic property of the textile material, its measured value may change through the conditions of test due to the interaction of parameters such as radiant heat transfer with the surroundings.

Several methods exist which may be used to measure heat and moisture properties of textiles, each of which is specific to one or the other and relies on certain assumptions for its interpretation.

The sweating guarded-hotplate (often referred to as the “skin model”) described in this International Standard is intended to simulate the heat and mass transfer processes which occur next to human skin. Measurements involving one or both processes may be carried out either separately or simultaneously using a variety of environmental conditions, involving combinations of temperature, relative humidity, air speed, and in the liquid or gaseous phase. Hence transport properties measured with this apparatus can be made to simulate different wear and environmental situations in both transient and steady-states. In this International Standard only steady-state conditions are selected.

© ISO 2025 – All rights reserved

Documents
Document Sharing Hub
Full document details: 25/30466031 DC

Documents
Document Sharing Hub