BSI Standards Publication

Textiles — Physiological effects — Measurement of liquid sweat transport and buffering

bsi.

National foreword

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The UK participation in its preparation was entrusted to Technical Committee TCI/100, Co-ordination of activities in textiles and clothing.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2022

ISBN 978 0 539 06723 1

ICS 59.080.30

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2022.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD **EN 17534**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2022

ICS 59.080.30

English Version

Textiles - Physiological effects - Measurement of liquid sweat transport and buffering

Textiles - Effets physiologiques - Mesurage du transfert de sueur liquide et de l'effet tampon vis-à-vis de la sueur liquide

Textilien - Physiologische Wirkungen - Messung des flüssigen Schweißtransports und der flüssigen Schweißpufferung

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Ref. No. EN 17534:2022 E

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European foreword

This document (EN 17534:2022) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2023, and conflicting national standards shall be withdrawn at the latest by May 2023.

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Introduction

For the assessment of the physiological properties of textiles worn next to the skin, not only their thermophysiological properties in stationary conditions (thermal and water vapour resistance) are important, which can be measured according to EN ISO 11092 with the sweating guarded-hotplate (Skin Model), but also their capacity to buffer in stationary sweat pulses and to transport liquid sweat, occurring in the practical use of textiles and clothing.

With liquid sweat appearing on the wearer's skin, the textiles take it up and transport it into the next textile layers or into the environmental air. This so-called buffering capacity and transport of liquid water (sweat) of a textile is measured quantitatively with the sweating guarded-hotplate, slightly modified from the design and procedures described in the above standard. A textile is judged to perform better, the more efficient the transport of sweat from the skin is, and the less liquid sweat remains on the skin.

1 Scope

This document specifies a test method for measuring liquid sweat management properties of knitted, woven and nonwoven textile fabrics, namely buffering index, sweat transport and sweat uptake.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

EN ISO 11092, *Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test) (ISO 11092)*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
uptake
buffering
effect measured by the quantity of liquid water remaining in the textile material in grams during and after a period of time in contact with water

3.2
sweat transport
F
amount of liquid water (sweat) in grams taken up by 1 m^2 of the textile material and within 1 h transported into ambient air with specific temperature and relative humidity

3.3
liquid sweat management
combining of the uptake or buffering of the sweat from the skin, on one hand, and of the transport of the sweat from the skin to the ambience, on the other hand

3.4
moisture permeability
F_1
effect measured by the amount of liquid water in grams taken up by 1 m^2 of the textile material and within 1 h transported into ambient air with a water vapour pressure gradient of 1 hPa between the two sides of the textile material

3.5
sweat uptake
G_2
effect measured by the portion of liquid water remaining in the textile material in grams after 15 min of contact with water