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Second edition
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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)



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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Terms and definitions	1
3 Symbols and units	2
4 Principle	3
5 Apparatus	3
6 Test specimens	6
6.1 Materials ≤ 5 mm thick.....	6
6.2 Materials > 5 mm thick.....	6
7 Test procedure	7
7.1 Determination of apparatus constants.....	7
7.2 Assembly of test specimens on the measuring unit.....	9
7.3 Measurement of thermal resistance R_{ct}	9
7.4 Measurement of water-vapour resistance R_{et}	10
8 Precision of results	10
8.1 Repeatability.....	10
8.2 Reproducibility.....	10
9 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

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 38, *Textiles*.

This second edition cancels and replaces the first edition (ISO 11092:1993), which has been technically revised. It also incorporates Amendment 1 to ISO 11092:1993 (ISO 11092:1993/Amd.1:2012).

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Introduction

This International Standard 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.