



ISO 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)*

**Third edition
2026-05**

This is a preview of ISO 11092:2026. [Click here to purchase the full version from the ANSI store.](#)



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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

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This document was prepared by Technical Committee TC38, *Textiles*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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

The main changes are as follows:

- the Normative references clause ([Clause 2](#)) has been added and subsequent clauses have been renumbered;
- in [8.1.3.1](#), the water supplied to the measuring plate has been changed to Grade 3 water in accordance with ISO 3696;
- 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 [9.2](#), the reproducibility of the water vapour resistance values has been updated based on the results from the interlaboratory test in 2025;
- [Annex C](#) has been made normative;
- a Bibliography has been added.

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.

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 can occur separately or simultaneously. They are time-dependent, and can 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 can change through the conditions of test due to the interaction of parameters, such as radiant heat transfer with the surroundings.

Several methods exist which can 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 document is intended to simulate the heat and mass transfer processes which occur next to human skin. Measurements involving one or both processes can 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 document only steady-state conditions are selected.