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Clothing — Physiological effects — Measurement of thermal insulation by means of a thermal manikin

Vêtements — Effets physiologiques — Mesurage de l'isolation thermique à l'aide d'un mannequin thermique

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Contents

Page

Foreword

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ISO 15831 was prepared by Technical Committee ISO/TC 38, *Textiles*.

Clothing — Physiological effects — Measurement of thermal insulation by means of a thermal manikin

1 Scope

This International Standard describes the requirements of the thermal manikin and the test procedure used to measure the thermal insulation of a clothing ensemble, as it becomes effective for the wearer in practical use in a relatively calm environment, with the wearer either standing or moving.

NOTE This thermal insulation, among other parameters, can be used to determine the physiological effect of clothing on the wearer in specific climate/activity scenarios.

2 Terms and definitions

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

2.1
clothing ensemble
group of garments worn together on the body at the same time

2.2
thermal insulation of clothing
temperature difference between the wearer's skin surface and ambient atmosphere divided by the resulting dry heat flow per unit area in the direction of the temperature gradient where the dry heat flow consists of conductive, convective and radiant components

NOTE Depending on the end use of the clothing, different thermal insulation values can apply.

2.2.1
total thermal insulation of clothing
I_t
total thermal insulation from skin to ambient atmosphere, including clothing and boundary air layer, under defined conditions measured with a stationary manikin

2.2.2
resultant total thermal insulation of clothing
I_{tr}
total thermal insulation from skin to ambient atmosphere, including clothing and boundary air layer, under defined conditions measured with a manikin moving its legs and arms