

This is a preview of "ISO 7243:2017". [Click here to purchase the full version from the ANSI store.](#)

Third edition
2017-08

Ergonomics of the thermal environment — Assessment of heat stress using the WBGT (wet bulb globe temperature) index

Ambiances chaudes — Estimation de la contrainte thermique de l'homme au travail, basée sur l'indice WBGT (température humide et de globe noir)



Reference number
ISO 7243:2017(E)

© ISO 2017

This is a preview of "ISO 7243:2017". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

This is a preview of "ISO 7243:2017". Click here to purchase the full version from the ANSI store.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Method	2
5 Determination of WBGT	3
6 Determination of metabolic rate	3
7 Determination of effects of clothing	3
8 Timing and duration of measurements	4
8.1 Timing of measurements.....	4
8.2 Duration of measurements.....	4
9 Spatial and temporal variations	5
9.1 Measurement specifications relating to heterogeneity of environment (spatial variations).....	5
9.2 Measurement specifications relating to time variations of WBGT index.....	5
9.3 Measurement specifications relating to time variations of metabolic rate.....	5
9.4 Measurement specifications relating to time variations of clothing.....	5
10 Interpretation	6
Annex A (informative) Reference values of the WBGT heat stress index	7
Annex B (normative) Measurement of parameters used in the WBGT index and specification of instruments	9
Annex C (informative) Alternative globe thermometers	11
Annex D (informative) Prediction of natural wet bulb temperature	13
Annex E (informative) Estimation of metabolic rate	15
Annex F (informative) Clothing adjustment values (CAVs)	16
Bibliography	17

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).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 5, *Ergonomics of the physical environment*.

This third edition cancels and replaces the second edition (ISO 7243:1989), which has been technically revised and contains the following changes:

- in [Annex A](#), for information, additional exposure limits are represented in [Figure A.1](#), together with reference equations;
- the assessment of heat stress now includes the effects of clothing;
- the potential errors and adjustments for non-standard globe temperature sensors are described;
- a method for predicting the natural wet bulb temperature is provided.

This is a preview of "ISO 7243:2017". [Click here to purchase the full version from the ANSI store.](#)

Introduction

This International Standard provides a method for the assessment of heat stress. It is one of a series of standards intended for use in the assessment of thermal environments. These include standards for the assessment of hot, moderate and cold environments involving both the principles of assessment and their practical application.

The wet bulb globe temperature (WBGT) is a heat stress index and its value represents the thermal environment to which an individual is exposed. This index is easy to determine in most environments. It should be regarded as a screening method to establish the presence or absence of heat stress.

A method of estimating the thermal stress, based on an analysis of the heat exchange between a person and the environment, allows a more accurate estimation of stress and an analysis of the methods of protection (see ISO 7933). Such a method should be used either directly when it is desired to carry out an intensive analysis of working conditions in heat, or in addition to the method presented in this standard, which is based upon the WBGT index, when the WBGT values obtained exceed the reference values shown.