

**Kuumad keskkonnad. Töötajale mõjuva  
soojuskoormuse hindamine WBGT-  
indeksi (wet bulb globe temperature) s.t.  
märja termomeetri ümmarguse otsa  
temperatuuri alusel**

Hot environments - Estimation of the heat stress on  
working man, based on the WBGT-index (wet bulb  
globe temperature)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 27243:2000 sisaldab Euroopa standardi EN 27243:1993 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 27243:2000 consists of the English text of the European standard EN 27243:1993.</p> <p>This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> Standard kirjeldab, kuidas mõõta WBGD-temperatuuri (märja termomeetri ümmarguse otsa temperatuuri) ja hinnata ainevahetust. Standardis esitatakse täiendavad soovitused maksimaalse soojuskoormuse kohta.</p>	<p><b>Scope:</b></p>
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**ICS 13.100**

**Võtmesõnad:** inimfaktori arvessevõtmine, inimkeha, juhtimiskeskused, keskkonnaga seonduvad testid, kliimatingimused, kuumus, soojuse mõõtmine, soojuslik mugavus, tööohutus

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Descriptors: Ergonomics, work safety, workplaces, human body, thermal comfort, environmental tests, climatic conditions, heat, thermal measurements.

**English version**

Hot environments

**Estimation of the heat stress on working man, based  
on the WBGT-index (wet bulb globe temperature)  
(ISO 7243:1989)**

Ambiances chaudes; estimation de la  
contrainte thermique de l'homme au  
travail, basée sur l'indice WBGT  
(température humide et de globe noir)  
(ISO 7243:1989)

Warmes Umgebungsklima; Ermittlung  
der Wärmebelastung des arbeitenden  
Menschen mit dem WBGT-Index (wet  
bulb globe temperature)  
(ISO 7243:1989)

This European Standard was approved by CEN on 1993-10-25 and is identical to the ISO Standard as referred to.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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## Foreword

This European Standard is the endorsement of ISO 7243. Endorsement of International Standard

ISO 7243:1989 Hot environments; estimation of the heat stress on working man, based on the WBGT-index (wet bulb globe temperature)

was recommended by CEN/TC 122 'Ergonomics', under whose competence this European Standard will henceforth fall.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by April 1994 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## Endorsement notice

The text of the International Standard ISO 7243:1989 was approved by CEN as a European Standard without any modification.

## Introduction

This International Standard is one of a series (listed in annex D) intended for use in the study of thermal environments.

The aim of this series of International Standards is in particular

- the finalization of definitions for terms to be used in methods of measurement, test and interpretation, taking into account those standards already existing or which are being drafted;
- the drafting of specifications relating to the methods of measurement for physical parameters characterizing thermal environments;
- the selection of one or more methods of interpretation of the parameters;
- the establishment of recommended or maximum values for exposure to thermal environments in the regions of comfort and extreme environments (hot and cold);
- the drafting of specifications relating to the methods of measurement of the efficiency of devices or procedures for individual or collective protection against heat and cold.

In the light of the increasing interest being shown in the problems presented by the exposure of individuals to thermal environments and the fact that there are few documents or national standards in this field, it seemed desirable to publish this International Standard, without waiting for the complete series to be drafted.

The wet bulb globe temperature (*WBGT*) index is one of the empirical indices representing the heat stress to which an individual is exposed. This index is easy to determine in an industrial environment. The method for evaluating the heat stress based on this index is a compromise between the desire to use a very precise index and the need to be able to carry out control measurements easily in an industrial environment. It should be regarded as an exploratory method.

A method of estimating the thermal stress based on an analysis of the heat exchange between man and environment allows a more accurate estimation of stress and an analysis of the methods of protection. But with the present technology of measurement, the method has the drawback of being longer and more difficult to undertake. Such a method will therefore 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 based on the *WBGT* index when the values obtained using the first approach exceed the reference values shown.

Establishing a method of evaluating heat stress based on the *WBGT* index is only one step towards the definition of an index showing the advantages of both methods together. However, as there is no such index at present it seemed advisable to encourage immediately the development of an International Standard capable of being used in an industrial environment.