

This is a preview of "ISO 8996:2004". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2004-10-01

Ergonomics of the thermal environment — Determination of metabolic rate

*Ergonomie de l'environnement thermique — Détermination du
métabolisme énergétique*



Reference number
ISO 8996:2004(E)

© ISO 2004

This is a preview of "ISO 8996:2004". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 8996:2004". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Principle and accuracy	1
4 Level 1, screening	3
4.1 Table for the estimation of metabolic rate by occupation	3
4.2 Classification of metabolic rate by categories	3
5 Level 2, observation	3
5.1 Estimation of metabolic rate by task requirements	3
5.2 Metabolic rate for typical activities	4
5.3 Metabolic rate for a work cycle	4
5.4 Influence of the length of rest periods and work periods	5
5.5 Obtaining values by interpolation	6
5.6 Requirements for the application of metabolic-rate tables	6
6 Level 3, analysis	6
6.1 Estimation of metabolic rate using heart rate	6
6.2 Relationship between heart rate and metabolic rate	7
7 Level 4, expertise	8
7.1 Determination of metabolic rate by measurement of oxygen consumption rate	8
7.2 The doubly labelled water method for long-term measurements	14
7.3 Direct calorimetry — Principle	14
Annex A (informative) Evaluation of the metabolic rate at level 1, screening	15
Annex B (informative) Evaluation of the metabolic rate at level 2, observation	17
Annex C (informative) Evaluation of the metabolic rate at level 3, analysis	20
Annex D (informative) Evaluation of the metabolic rate at level 4, expertise — Examples of the calculation of metabolic rate based on measured data	21

This is a preview of "ISO 8996:2004". [Click here to purchase the full version from the ANSI store.](#)

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 8996 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 5, *Ergonomics of the physical environment*.

This second edition cancels and replaces the first edition (ISO 8996:1990), which has been technically revised.