Ergonoomika. Soojuslike ainevahetusproduktide määramine

Ergonomics - Determination of metabolic heat production



EESTI STANDARDI EESSÕNA

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Foreword

This European Standard is the endorsement of ISO 8996:1990. Endorsement of ISO 8996 was recommended by Technical Committee 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of an identical text or by endorsement, at the latest by April 1994, and conflicting national standards shall be withdrawn at the latest by April 1994.

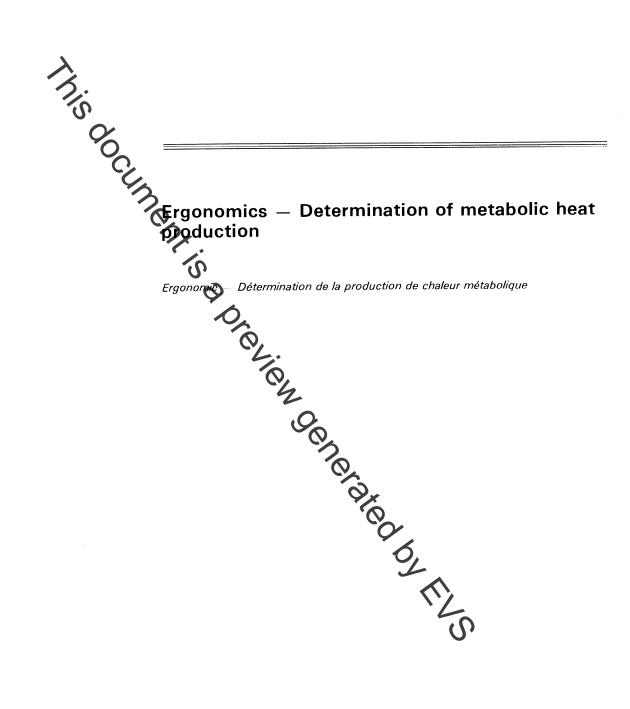
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Foreword

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International Organization for Standardization

Case postale 56 • CH-1211 Genève 20 • Switzerland

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this document is a preview generated by EKS This International Standard is one of a series intended for use in the study of thermal environments. It covers the evaluation of metabolic heat production by determining the metabolic rate needed to evaluate comfort and thermal stress using the methods This document is a provide the black This page introduced by the black the page introduced by the black

Ergonomics – Determination of metabolic heat production

1 Scope

The metabolic rate, as a conversion of chemical into mechanical and thermal energy, measures the energetic cost of muscular load and gives a numerical index of activity. A knowledge of metabolic rate is necessary to measure metabolic heat production for the evaluation of human heat regulation. Specifying methods for determination metabolic rate, this International Standard can also be used for other applications — for example: the assessment of working practices, the cost of specific jobs or sport activities, the total cost of activity, etc.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7933 : 1989, Hot environments — Analytical determination and interpretation of thermal stress using calculation of required sweat rate.

ISO 9886 : -1, Ergonomics – Evaluation of thermal strain by physiological measurements.

3 Principle and accuracy

Since most of the energy produced by an organism is converted into thermal energy, the mechanical fraction — called the "useful work" (W) — can normally be neglected and the metabolic heat production can be equated with the metabolic rate (see ISO 7933).

Table 1 gives three approaches for determining metabolic rate.

Level	Method	Accuracy	Inspection of the work place
Ι	A – Classification according to kind of activity	Rough information where the risk of error is very great	Not necessary
	B — Classification according to occupation		Information on technical equipment, work organization
	A – Use of tables of group assessment	High error risk	Time study necessary
	B – Use of estimation tables for specific activities	<i>C</i>	
	C – Use of heart rate under defined conditions		Not necessary
111	Measurement	Risk of errors within the limits of the accuracy of the measurement and of the time study	Time study necessary
		Accuracy: ± 5 %	L

Table 1 – Levels for the determination of the metabolic rate