TECHNICAL SPECIFICATION



Second edition 2020-03

Respiratory protective devices — Human factors —

Respiratory pro Human factors -Part 5: Thermal effects

Dispositifs de protection respiratoire — Facteurs humains — Partie 5: Effets thermiques



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Contents

Page

word		iv
oductio	on	v
Scop	pe	
Norn	mative references	
	ns, definitions and abbreviations Terms and definitions	1
4.1 4.2 4.3 4.4 4.5	General Effects on skin contact by the RPD Hot surfaces Cold surfaces Effects of inhaled breathable gas to, airways and lung tissues 4.5.1 General mask function 4.5.2 Effects caused by hot breathable gas 4.5.3 Effect caused by cold breathable gas	2 2 3 4 8 8 8 9
5.1 5.2 5.3 5.4 5.5 5.6	Respiratory heat exchange Skin surface heat exchange Increased metabolic rate Thermoneutral conditions Heat stress Cold stress	10 11 11 12 12 12 13
	oducti Sco Nor Ter 3.1 3.2 Loc 4.1 4.2 4.3 4.4 4.5 Effe 5.1 5.2 5.3 5.4 5.5 5.6	Scope Normative references Terms, definitions and abbreviations 3.1 Terms and definitions 3.2 Abbreviated terms and symbols Local thermal effects 4.1 General 4.2 Effects on skin contact by the RPD 4.3 Hot surfaces 4.4 Cold surfaces 4.5 Effects of inhaled breathable gas to, airways and lung tissues 4.5.1 General mask function 4.5.2 Effects caused by hot breathable gas 4.5.3 Effect caused by cold breathable gas 5.4 Fifects on whole body heat balance 5.1 Respiratory heat exchange 5.2 Skin surface heat exchange 5.3 Increased metabolic rate 5.4 Thermoneutral conditions 5.5 Heat stress 5.6 Cold stress

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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety* — *Personal protective equipment*, Subcommittee SC 15, *Respiratory protective devices*.

This second edition cancels and replaces the first edition (ISO/TS 16976-5:2013), which has been technically revised.

A list of all parts in the ISO/TS 16976 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <u>www.iso.org/members.html</u>.

Introduction

For an appropriate design, selection and use of respiratory protective devices, basic physiological demands of the user should be considered. The function of a respiratory protective device, the way it is designed and used and the properties of its material can have a thermal effect on the human body.

This document belongs to a series of documents providing basic physiological and anthropometric data on humans. It contains information about thermal effects associated with wearing respiratory protective devices

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Respiratory protective devices — Human factors —

Part 5: **Thermal effects**

1 Scope

This document is one part of a series of Technical Specifications that provide information on factors related to human anthropometry, physiology, ergonomics and performance for the preparation of standards for design, testing and use of respiratory protective devices. This document contains information related to thermal effects of respiratory protective devices on the human body. In particular information is given for:

- temperatures of surfaces associated with discomfort sensation and harmful effects on human tissues;
- thermal effects of breathing gas temperatures on lung airways and tissues;
- effects of breathing gas temperature and humidity on respiratory heat exchange;
- effects of respiratory protective devices on overall body heat exchange.

The information represents data for adult healthy men and women in the age 20 years to 60 years.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11079, Ergonomics of the thermal environment — Determination and interpretation of cold stress when using required clothing insulation (IREQ) and local cooling effects

ISO 13732-1, Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces

ISO 13732-3, Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 3: Cold surfaces

ISO 16972, Respiratory protective devices — Terms, definitions, graphical symbols and units of measurement

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16972 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <u>https://www.iso.org/obp</u>
- IEC Electropedia: available at http://www.electropedia.org/