

PD ISO/TS 16976-7:2013



BSI Standards Publication

Respiratory protective devices — Human factors — Part 7: Hearing and speech

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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**Respiratory protective devices —
Human factors —**

**Part 7:
Hearing and speech**

*Appareils de protection respiratoire — Facteurs humains —
Partie 7: Discours et audition*



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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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 15, *Respiratory protective devices*.

ISO/TS 16976 consists of the following parts, under the general title *Respiratory protective devices — Human factors*:

- *Part 1: Metabolic rates and respiratory flow rates*
- *Part 2: Anthropometrics*
- *Part 3: Physiological responses and limitations of oxygen and limitations of carbon dioxide in the breathing environment*
- *Part 4: Work of breathing and breathing resistance: Physiologically based limits*
- *Part 5: Thermal effects*
- *Part 7: Hearing and speech*
- *Part 8: Ergonomic factors*

The following part is under preparation:

- *Part 6: Psycho-physiological effects*

Introduction

For an appropriate design, selection and use of respiratory protective devices, basic physiological demands of the user must be considered. The function of a respiratory protective device, the way it is designed and used and the properties of its material may affect communications: either speech or hearing or both.

This part of ISO/TS 16976 belongs to a series of documents providing basic physiological and anthropometric data on humans. It contains information about hearing and speech associated with wearing respiratory protective devices.

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Respiratory protective devices — Human factors —

Part 7: Hearing and speech

1 Scope

This part of ISO/TS 16976 contains information related to the interaction between respiratory protective devices and the human body functions of hearing and speech.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1999, *Acoustics — Estimation of noise-induced hearing loss*

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

3 Terms and definitions, and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1999, ISO 16972 and the following apply.

3.1.1 hearing

manner in which the brain and central nervous system recognizes and interprets sounds

3.1.2 ototoxicity

damage to hearing from overexposure to drugs or toxic substances

3.1.3 noise

unwanted sound

3.1.4 presbycusis

gradual sensorineural hearing loss due to natural ageing

3.1.5 sound

form of energy that moves through media in waves of pressure

3.1.6 sound pressure

local pressure change caused by the vibration

Note 1 to entry: Measured in pascals (Pa).