TECHNICAL SPECIFICATION

ISO/TS 17420-9

First edition
2021-10

Respiratory protective devices — Performance requirements —

Part 9: Special application chemical, biological, radiological and nuclear (CBRN) supplied breathable RPD

Appareils de protection respiratoire — Exigences de performances —

Partie 9: Appareils d'application spéciale de gaz respiratoire nucléaire-radiologique, biologique, chimique (NRBC)

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Reference number
ISO/TS 17420-9:2021(E)

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Published in Switzerland

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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 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

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 www.iso.org/members.html.

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Introduction

The personal protection requirements of personnel who respond to emergencies are recognised as being different from those of the regular workforce. With respect to response to incidents involving release of chemical, biological or radiological materials, or after nuclear events, specific requirements have to be established. The hazardous exposures occurring in such incidents can result in severe consequences for an improperly protected responder.

Specifically, for the types of protection required.

a) Protection levels need to be high for those in the vicinity of an incident.

b) Materials used in construction of the equipment shall withstand permeation by highly aggressive chemicals.

These requirements in the ISO system summarized in this document cover the special application CBRN. This document is an adjunct to other parts of ISO 17420 and should be read together with them.

This document provides classification of equipment, performance requirements and specific test methods for respiratory protective devices (RPD) for use in CBRN response. Selection requirements are addressed in separate documents.

NOTE The performance requirements included in this document refer to laboratory testing using specified test agents under specified conditions which might not indicate the performance of the device in actual usage.

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Respiratory protective devices — Performance requirements —

Part 9: Special application chemical, biological, radiological and nuclear (CBRN) supplied breathable RPD

1 Scope

This document specifies the requirements for respiratory protective devices for use by workers during response to incidents involving chemical, biological, radiological or nuclear (CBRN) materials used with intent to cause harm or in cases of accidental release outside traditional hazardous materials response categories. For the purposes of this specification, all incidents described here are named CBRN incidents.

This document is applicable to RPD for use by personnel in the following roles:

— First responders: including police, fire service, emergency medical, search and rescue, sampling and detection teams.

— Workers needed for specific roles during response (utility, transportation, service continuity).

— Medical personnel working with casualties of CBRN incidents.

— Responders to release incidents involving nuclear materials.

— Non-emergency but CBRN-related roles.

— Workers in need of protection during escape from a CBRN or radiological release incident.

— Workers in need of protection from nuclear materials.

The requirements for RPD use by the following groups are not addressed by this document:

— Military personnel outside of first responder roles.

— Children.

— Animals.

Requirements for the following are not covered by this document:

— Collective protection systems including ventilated casualty/body bags.

— Methods of and criteria for decontamination of RPD.

— Disposal of used or contaminated equipment.

This document is focused on respiratory protection requirements, but it is recognised that CBRN RPD are always used as part of an ensemble with protective clothing. The total ensemble effectiveness is not covered by this document.

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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 16972, *Respiratory protective devices — Vocabulary and graphical symbols*

ISO/TS 16973, *Respiratory protective devices — Classification for respiratory protective device (RPD), excluding RPD for underwater application*

ISO/TS 16975-1:2016, *Respiratory protective devices — Selection, use and maintenance — Part 1: Establishing and implementing a respiratory protective device programme*

ISO 17420-1:2021, *Respiratory protective devices — Performance requirements — Part 1: General*

ISO 17420-4:2021, *Respiratory protective devices — Performance requirements — Part 4: Requirements for supplied breathable gas RPD*

ISO 17420-5:2021, *Respiratory protective devices — Performance requirements — Part 5: Special application fire and rescue services - Supplied breathable gas RPD and filtering RPD*

ISO 17420-6:2021, *Respiratory protective devices — Performance requirements — Part 6: Special application escape - Filtering RPD and supplied breathable gas RPD*

ISO/TS 17420-8, *Respiratory protective devices — Performance requirements — Part 8: Special application chemical, biological, radiological and nuclear (CBRN) filtering and radiological-nuclear (RN) filtering RPD*

EN 388, *Protective gloves against mechanical risks*

IEC 60721-1, *Classification of environmental conditions - Part 1: Environmental parameters and their severities*

3 Terms, definitions and abbreviations

For the purposes of this document, the terms and definitions given in ISO 16972, ISO 17420-1 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 Terms and definitions

3.1.1
chemical material
substance that can be disseminated to cause harm, including chemical warfare agents and toxic industrial chemicals

3.1.2
biological material
micro-organism that is a pathogen and that has the potential to be used intentionally to cause harm

Note 1 to entry: Human pathogens are relevant to RPD selection.

3.1.3
radiological material
substance that emits ionizing radiation and that could be disseminated to cause harm

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