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Respiratory protective devices — Performance requirements —

Part 5: Special application fire and rescue services - Supplied breathable gas RPD and filtering RPD

Appareils de protection respiratoire — Exigences de performances —

Partie 5: Applications particulières pour lutte contre les feux et opérations de sauvetage - APR alimentés en gaz respirable et APR filtrants

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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).

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For an explanation on 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 the following URL: 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* in close cooperation with Subcommittee SC 14, *Firefighters' personal equipment*.

A list of all parts in the ISO 17420 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 www.iso.org/members.html.

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Introduction

This document describes requirements for RPD used for special applications fire and rescue services and its elements and components.

Some test methods are described. For other test methods references are given to the ISO 16900 series "Methods of test and test equipment" or other test methods not developed by ISO/TC 94/SC 15.

The sequence of testing follows the principle to minimize the necessary number of samples by carrying out destructive tests at the end. For safety reason it also includes that tests with test subjects are only carried out after the test samples have shown their safe performance in other tests.

To apply this standard properly consider the following:

— ISO 17420-1 specifies the general requirements for supplied breathable gas RPD and filtering RPD and cannot be used as a standard for "certification" alone. Therefore, compliance with the requirements and tests of ISO 17420-2 or ISO 17420-4 is required in addition.

The structure of the standards is as follows:

ISO 17420-1 specifies the general requirements for RPD.

ISO 17420-2 and ISO 17420-4 gives requirements for filtering or supplied breathable gas RPD and give information if any of the general requirements in Part 1 needs an addition.

EXAMPLE for ISO 17420-4 5.8.1 General

ISO 17420-1:2021, 5.8.1 applies with the following in addition:

ISO 17420-5 to ISO 17420-9 gives requirements for filtering or supplied breathable gas RPD — Special application and some of the requirements will supersede requirements specified in ISO 17420-2 or ISO 17420-4.

EXAMPLE for ISO 17420-5 7.2.1.3 Temperature of operation – level 0 — Supplied breathable gas RPD

This clause supersedes ISO 17420-4:2021, 6.1.

For more information see also the introduction in the other parts of the ISO 17420 series.

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Respiratory protective devices — Performance requirements —

Part 5: Special application fire and rescue services - Supplied breathable gas RPD and filtering RPD

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1 Scope

This document specifies the minimum requirements for supplied breathable gas RPD and filtering RPD to be used for special application fire and rescue services.

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 6529:2013, *Protective clothing — Protection against chemicals — Determination of resistance of protective clothing materials to permeation by liquids and gases*

ISO 8031, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance and conductivity*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 10297, *Gas cylinders — Cylinder valves — Specification and type testing*

ISO 13506-1, *Protective clothing against heat and flame — Part 1: Test method for complete garments — Measurement of transferred energy using an instrumented manikin*

ISO 16900-1:2019, *Respiratory protective devices — Methods of test and test equipment — Part 1: Determination of inward leakage*

ISO 16900-2, *Respiratory protective devices — Methods of test and test equipment — Part 2: Determination of breathing resistance*

ISO 16900-5, *Respiratory protective devices — Methods of test and test equipment — Part 5: Breathing machine, metabolic simulator, RPD headforms and torso, tools and verification tools*

ISO 16900-6, *Respiratory protective devices — Methods of test and test equipment — Part 6: Mechanical resistance/strength of components and connections*

ISO 16900-7, *Respiratory protective devices — Methods of test and test equipment — Part 7: Practical performance test methods*

ISO 16900-8, *Respiratory protective devices — Methods of test and test equipment — Part 8: Measurement of RPD air flow rates of assisted filtering RPD*

ISO 16900-10, *Respiratory protective devices — Methods of test and test equipment — Part 10: Resistance to ignition, flame, radiant heat and heat*

ISO 16900-12, *Respiratory protective devices — Methods of test and test equipment — Part 12: Determination of volume-averaged work of breathing and peak respiratory pressures*

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ISO 16900-14, *Respiratory protective devices — Methods of test and test equipment — Part 14: Measurement of sound pressure level*

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

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 17420-2:2021, *Respiratory protective devices — Performance requirements — Part 2: Requirements for filtering RPD*

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

ISO 80079-36:2016, *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements*

IEC 60068-2-27:2010, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock*

IEC 60068-2-64, *Environmental testing — Part 2-64: Tests — Test Fh: Vibration, broadband random and guidance*

IEC 60079-0, *Explosive atmospheres — Part 0: Equipment — General requirements*

IEC 60529:2013, *Degrees of protection provided by enclosures (IP Code)*

IEC 60721-1:2002, *Classification of environmental conditions — Part 1: Environmental parameters and their severities*

IEC 60721-3-2:2018, *Classification of environmental conditions — Part 3-2: Classification of groups of environmental parameters and their severities — Transportation and Handling*

IEC 61000-6-2, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity standard for industrial environments*

EN 15333-1:2008, *Respiratory equipment - Open-circuit umbilical supplied compressed gas diving apparatus - Part 1: Demand apparatus*

ASTM D1003:2013, *Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics*

ASTM D6413, *Standard Test Method for Flame Resistance of Textiles (Vertical Test)*

NFPA 1981:2019, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*

3 Terms, definitions, abbreviations and symbols

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 https://www.iso.org/obp

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

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