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**Respiratory protective devices —  
Selection, use and maintenance —**

**Part 2:  
Condensed guidance to establishing  
and implementing a respiratory  
protective device programme**

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*Appareils de protection respiratoire — Choix, utilisation et  
entretien —*

*Partie 2: Directives condensées pour établir et améliorer un  
programme de dispositif de protection respiratoire*

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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](http://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](http://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 on 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](http://www.iso.org/iso/foreword.html).

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

ISO 16975 consists of the following parts, under the general title *Respiratory protective devices — Selection, use and maintenance*:

- *Part 1: Establishing and implementing a respiratory protective device programme* [Technical Specification]
- *Part 2: Condensed guide to establishing and implementing a respiratory protective device programme* [Technical Specification]
- *Part 3: Fit testing procedures*

## Introduction

Respiratory protective devices (RPD) should only be used after all practicable control measures have been taken or while they are being implemented, and the risk assessment indicates the presence or potential presence of a hazardous atmosphere.

When RPD is required to control exposure, then the RPD needs to be correctly selected, used and maintained.

This Technical Specification provides a condensed guide for establishing and implementing a complete respiratory protective device programme for RPD that meet the requirements of the performance standards. It is designed for employers especially in small and medium sized enterprises.

This Technical Specification provides basic information on risk assessment, selection procedure, training, use and maintenance. Assistance from the RPD supplier/manufacturer or health and safety professional to establish and implement the programme may be required.

It provides guidance on how to do this together with a table to assist in the selection process. It follows a simple step-by-step approach to deciding the minimum level of protection required from the RPD and the most suited to the wearers, the task and workplace conditions.

It is the responsibility of the employer, to correctly select adequate and suitable RPD based on a risk assessment.

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# Respiratory protective devices — Selection, use and maintenance —

## Part 2:

# Condensed guidance to establishing and implementing a respiratory protective device programme

## 1 Scope

This Technical Specification provides brief guidance to assist persons responsible for establishing and implementing a programme for respiratory protective devices (RPD) that meet the performance requirements. There are special applications where the selection of suitable RPD using this guide is not appropriate. These are:

- a) Fire Fighting – structural and wildland firefighting, hazardous materials and rescue applications;
- b) CBRN (Chemical, Biological, Radiological and Nuclear agents);
- c) Marine – shipboard or off-shore firefighting or hazardous materials applications;
- d) Mining – underground mining or firefighting and rescue applications; and
- e) Escape – general, fire, CBRN, marine and mining.

NOTE 1 For more detailed information relating to the special applications, refer to ISO/TS 16975-1.

This guidance does not apply to selecting RPD against bio aerosols.

NOTE 2 Reference [3] addresses selection of RPD for bio aerosols that are capable of causing infection or adverse or allergic response but for which no occupational exposure limits have been established.

This guidance does not apply to RPD programmes for RPD used exclusively under water, in aircraft, and medical life support respirators and resuscitators.

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

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

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16972 and ISO/TS 16975-1 apply.

## 4 Basic information

### 4.1 General

RPD should only be used after all other reasonably practicable control measures have been taken.

### 4.2 Risk assessment

To select adequate and suitable RPD, first, complete a risk assessment which considers the hazardous substance(s) being used or generated, the possible lack of oxygen, the task(s) being undertaken and the person performing the task(s) (i.e. the wearer). Information on hazardous substance(s), such as occupational exposure limits (OEL) can be found in their safety data sheets (SDS) or material safety data sheets (MSDS) or other published documentation. Information on process generated substances, if applicable, shall be followed. Such information may be available in substance-specific regulations or guidance (e.g. for asbestos).

Existing regulations that direct to a specific type and class of RPD shall be followed, e.g. asbestos.

Once the risk assessment is completed and the required information gathered, the RPD selection process and record ([Annex A](#)) can be used.

Depending upon the workplace circumstances and the information gathered for the risk assessment, the output of the RPD Selection Record may be either the classification of suitable RPD, or sufficient information to enable the RPD supplier to recommend suitable RPD.

NOTE Further information on RPD classification is given in ISO/TS 16973<sup>[1]</sup>.

The record of RPD selection should be retained.

Where the RPD selection record recommends seeking professional advice, RPD manufacturers/suppliers and safety and health consultants are good sources of information.

### 4.3 Use of assigned protection factors (APF) and ISO protection levels (PL)

National or local regulations may require that RPD be selected using APF. Where this is the case, the adequacy assessment ([Annex A](#), Step 4) provides a method for using APF.

This part of ISO/TS 16975 provides an option of using either the nationally accepted assigned protection factors (APF) or ISO protection levels (PL).

However, it should be noted that APF relate to specific design types and classes of RPD and that these will be different to the ISO RPD classifications. RPD complying with the performance standards of the same basic design may have different laboratory performance and may therefore fall into a different protection class (PC).

Where nationally accepted APF are to be used, select RPD having an APF greater than the hazard ratio (HR) calculated in [Annex A](#), Step 3. The PL is used in the selection process in the same manner as APF.

**IMPORTANT — The proposed ISO protection levels that are proposed, have been derived from professional judgement based on previous assigned protection factors, their associated nominal protection factors (NPF) and expert knowledge of differences between laboratory and workplace protection performance of current products. The values will be validated when RPD conforming to the requirements of the performance standards are available and, until then, are for information only. In the interim period, APF's should be used, if available. Where PLs are used prior to their validation, it is the responsibility of the RPD programme administrator to determine the suitability of the PL values.**



## 4.4 Types and classes of RPD

### 4.4.1 Types of RPD

There are two types of respiratory protective devices: filtering RPD and supplied breathable gas RPD.

#### a) Filtering RPD

Filtering RPD remove (by e.g. filtration, adsorption, or chemical reaction) hazardous substances present in the ambient air before being inhaled by the wearer. The air is drawn through the filter(s) either by the wearer's inhalation action or with the assistance of a blower unit.

#### b) Supplied breathable gas RPD

Supplied breathable gas RPD supply the wearer with breathable gas from a source independent of the ambient atmosphere either individually carried (self-contained) or from a remote source.

### 4.4.2 Classes of RPD

All RPD are classified by protection class (PC1 to PC6), the work rate class (W1 to W4) and the respiratory interface class. Additionally, filtering RPD are classified by the type and class of filters and supplied breathable gas RPD are classified by breathing gas capacity.

RPD are available with a range of respiratory interfaces. They are categorized by areas of coverage of the wearer's body and by fitting characteristics. These are mouth only, mouth and nose, face, head and body. Respiratory interfaces can be tight fitting (type T), those that have a complete seal with the skin, or loose fitting (type L), those that do not have a complete seal to the wearer's skin.

Examples of various respiratory interfaces and type of RPD are given in ISO/TS 16975-1.

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## 5 RPD programme elements

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The RPD programme elements are specified in [Table 1](#).

**Table 1 — RPD programme elements**

Programme elements	Actions	Relevant clauses
Risk assessment	Carry out a risk assessment Apply control measures if required Establish the need for RPD	<a href="#">4.2</a>
Environment	Consider the requirements of the workplace environment, the task(s) and the wearer(s)	<a href="#">6.2</a> and <a href="#">6.3</a>
Hazardous substances	Measure or estimate its concentration and its form in the air – particulate, gas, vapour Consider the potential for oxygen-deficiency	<a href="#">6.4</a>
Protection class	Identify the minimum protection level required	<a href="#">6.5</a>
Selection	Use the information gathered in the assessment to select the appropriate RPD	<a href="#">6.6</a> to <a href="#">6.10</a>
Fit testing	Ensure tight-fitting RPD (Class T) are fit tested	<a href="#">6.11</a>
Training of the RPD wearer	Provide training in the use, checking and maintenance of the RPD	<a href="#">Clause 7</a>
Implementation	Include a filter change routine, battery charging, cleaning, breathable gas quality checking as appropriate	<a href="#">Clause 8</a>
Management	Include regular supervision and regular reminders to wearers	<a href="#">Clause 9, 9 a</a>

**Table 1** (continued)

Programme elements	Actions	Relevant clauses
Maintenance	Maintain reusable RPD Replace parts as recommended by the manufacturer. Correct any faults promptly	<a href="#">9 b</a>
Review	Review at suitable intervals to ensure that any change in conditions, hazardous substance, wearers, etc. are adequately addressed	<a href="#">9 c</a>
Records	Keep records of the RPD programme	<a href="#">Clause 10</a>

## 6 Selection procedure

### 6.1 General

Follow the steps below and complete the RPD selection process and record as given in [Annex A](#). Information from the hazards assessment concerning the hazardous substances, the working environment including the potential for oxygen-deficiency, the task and the wearer(s) is required.

Where the table in [Annex A](#) recommends seeking professional advice RPD manufacturers/suppliers and safety consultants are a good source of information.

### 6.2 Step 1: Organization information

Fill in the details of the organization and location of where the task is to be undertaken, and the details and job title of the person completing the selection procedure.

### 6.3 Step 2: Description of the task

Describe the task and the environment in which the task will be conducted.

NOTE Not all RPD are suitable for wearing for long periods of time or suitable for cold or hot environments, etc.

### 6.4 Step 3: Define the hazards

The contaminant(s) should be identified by chemical name or Chemical Abstract Number (CAS number) and its airborne concentration(s) measured or estimated. The potential for oxygen deficiency in the working area shall be considered.

The information on the occupational exposure limits (OEL) and the immediately dangerous to life or health (IDLH) concentrations (if applicable) can be found by reference to SDS or existing national regulations, publications or guidance.

For each of the contaminants, enter in the RPD selection process and record (see [Annex A](#)):

- a) the concentration in Column A;
- b) the IDLH level in Column B;
- c) the OEL in Column C;
- d) the calculated hazard ratio in Column D;
- e) the highest hazard ratio in Column E.

If the contaminant is not known and/or the concentration not known or it is uncertain whether there is the potential for oxygen-deficiency then seek professional advice or follow national, local or industry guidance.

When multiple contaminants are present that have additive health effects, the HR should be calculated for the mixture using the mixture formula (see ISO/TS 16975-1). This result is the required PL.

When multiple contaminants are present that do not have additive health effects, the HR should be calculated for each contaminant and the highest HR should be used to determine the required PL.

### 6.5 Step 4: Determination of the protection class

When national regulations specify the use of APF, select the APF which is greater than the highest hazard ratio calculated.

When no national regulations are specified, the use of ISO protection levels (PL) is recommended. Determine the PC required by comparing the highest hazard ratio calculated in Step 3 with the PL listed.

### 6.6 Step 5: Work rate assessment

In order to select RPD that is suitable for the work rate at which the wearer will be working during the task, compare the task demands with the descriptions in the table for W1, W2, W3 and W4.

- a) If the task only requires light to moderate manual work, then select W1, e.g. light manual work to sustained hand and arm work.
- b) If the task requires heavy to very heavy work, then select W2, e.g. intense arm and trunk work to intensive shovelling or digging.
- c) If the task requires very, very heavy to extremely heavy manual work, then select W3, e.g. walking quickly or running with protective equipment and/or heavy tools and goods to crawling under and climbing over obstacles.
- d) If the task requires maximal work, then select W4, e.g. climbing stairs and ladders at high speed.

### 6.7 Step 6: Filter identification

If filtering RPD is selected, then the correct type and class of filter shall be used. Selecting the correct filter type and class requires knowledge of the task, the hazard and the work rate. Using this information seek professional advice to identify the correct filter.

### 6.8 Step 7: Supplied breathable gas RPD capacity

Supplied breathable gas RPD of class Sxxxx usually includes a cylinder(s) of compressed breathable gas. These cylinders are available in various volumes and working pressures leading to a number of usable durations. Calculate the minimum volume in litres required to ensure that the capacity of the RPD is adequate for the task duration and work rate.

If the calculated capacity is greater than any available class Sxxxx RPD capacity then either redesign the work task to allow available class Sxxxx RPD to be used, or use RPD of class SY if suitable (see 6.11).

### 6.9 Step 8: Task related factors

The RPD selected shall be suitable for the task that the wearer will be undertaking while wearing the RPD. Certain task requirements may restrict the range of suitable RPD. This step asks a number of questions relating to the task and gives advice as to the most suitable types of RPD.

### 6.10 Step 9: Wearer related factors

The RPD selected shall be suitable for the wearer. Some wearer-related factors such as hair, the need to wear corrective lenses and medical conditions might restrict the range of suitable RPD. This step asks a number of questions relating to the wearer and gives advice as to the most suitable types of RPD.