

FOREWORD

The Workers' Safety and Compensation Commission (WSCC) produced this industry code of practice in accordance with subsections 18(3) and 18(4) of the Northwest Territories and Nunavut *Safety Acts*.

The Code of Practice applies to all workplaces covered by the Northwest Territories and Nunavut *Safety Acts* and *Occupational Health and Safety Regulations*.

This *Personal Protective Equipment Respiratory Protection Code* relates to section 4 and 5 of the *Safety Act* and Sections 13, 16, 23, 89, 90, 91, 92, 93, 102, 281, 316, 374, 378, 387 and 466 of the *Occupational Health and Safety Regulations*.

This code is in effect as published in the Northwest Territories *Gazette* and Nunavut *Gazette*, in accordance with the *Safety Acts and Occupational Health and Safety (OHS) Regulations*.

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Chief Safety Officer, WSCC

Disclaimer

This publication refers to obligations under the workers' compensation and occupational health and safety legislation as administered by the Workers' Safety and Compensation Commission.

To ensure compliance with legal obligations always refer to the most recent legislation. This publication may refer to legislation that has been amended or repealed.

Check for information on the latest legislation at wsc.nt.ca or wsc.nu.ca, or contact WSCC at 1-800-661-0792.

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1 INTRODUCTION

This code of practice provides basic guidelines to ensure worker safety in the workplace through the use of respiratory Personal Protective Equipment (PPE). Respiratory protection is required to protect workers from specific occupational hazards.

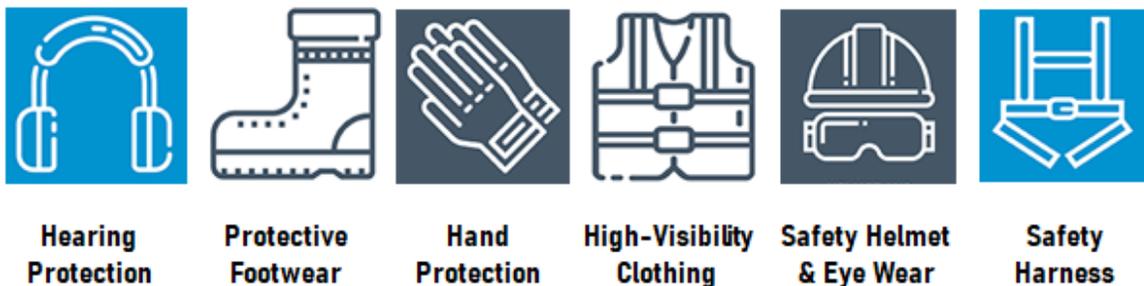
Respiratory hazards are invisible and can have severe impact on the health and safety of a worker. A respiratory hazard can be a particulate, gas or vapor, and include airborne contaminants, biological contaminants, dusts, mists, fumes, and gases, or oxygen-deficient atmospheres. Some respiratory health problems have long-term consequences and dramatically reduce quality of living due to difficulty breathing.

Personal Protective Equipment (PPE), such as respirators, are equipment worn by workers to minimize exposure to the occupational hazards of chemical, biological and other airborne substances. A hazard cannot be eliminated by the PPE, but the risk of injury can be reduced.

Definitions

Personal Protective Equipment (PPE) – any clothing, device, or other article for workers to use to prevent injury or to facilitate rescue.

Respiratory device - a device such as an atmosphere-supplying respirator, an air-purifying respirator, or an escape respirator that is designed to protect a wearer from inhaling a hazardous atmosphere.



PPE USAGE IS SPECIFIC TO EVERY WORK SITE AND JOB HAZARD ASSESSMENT

For more information see the PPE Codes of Practice and the [Hazard Assessment Code of Practice](#) at [wscc.nt.ca](#)

2 REGULATORY REQUIREMENTS

By law, workers must use personal protective equipment in the workplace when it is required. Employer responsibilities include providing instruction on what PPE is needed, maintenance and cleaning of the equipment, and educating and training workers on proper use of PPE.

Occupational Health and Safety Regulations **Northwest Territories and Nunavut**

Part 3

General Duties of Workers

- 13.** A worker shall, in respect of a work site,
- (a) use safeguards, safety equipment and personal protective equipment required by these regulations; and
 - (b) follow safe work practices and procedures required by or developed under these regulations.

Supervision of Work

- 16.** (1) An employer shall ensure that, at a work site,
- (b) supervisors have sufficient knowledge of the following:
 - (iii) the need for, and safe use of, personal protective equipment

PERSONAL PROTECTIVE EQUIPMENT

Suitable and Adequate Equipment

- 89.** (1) If it is not reasonably possible to protect the health and safety of a worker by design of a plant and work processes, suitable work practices or administrative controls, an employer shall ensure that the worker wears or uses suitable and adequate personal protective equipment.
- (2) If personal protective equipment will not effectively protect a worker, an employer shall, if reasonably possible, provide alternative work arrangements for the worker.

General Responsibilities

- 90.** (1) An employer who is required by these regulations to provide personal protective equipment to a worker shall
- (a) provide approved personal protective equipment for use by the worker at no cost to the worker;
 - (b) ensure that the personal protective equipment is used by the worker;

- (c) ensure that the personal protective equipment is at the work site before work begins;
 - (ii) maintained and kept in a sanitary condition, and
 - (iii) removed from use or service when damaged.
- (d) ensure that the personal protective equipment is stored in a clean, secure location that is readily accessible to the worker;
- (e) ensure that the worker is
 - (i) aware of the location of the personal protective equipment, and
 - (ii) trained in its use;
- (f) inform the worker of the reasons why the personal protective equipment is required to be used and of the limitations of its protection; and
- (g) ensure that personal protective equipment provided to the worker is
 - (i) suitable and adequate and a proper fit for the worker,
- (2) If an employer requires a worker to clean and maintain personal protective equipment, the employer shall ensure that the worker has adequate time to do so during normal working hours without loss of pay or benefits.
- (3) If reasonably possible, an employer shall make appropriate adjustments to the work procedures and the rate of work to eliminate or reduce any danger or discomfort to the worker that could arise from the worker's use of personal protective equipment.
- (4) A worker who is provided with personal protective equipment by an employer shall
 - (a) use the personal protective equipment; and
 - (b) take reasonable steps to prevent damage to the personal protective equipment.
- (5) If personal protective equipment provided to a worker becomes defective or otherwise fails to provide the protection it is intended for, the worker shall
 - (a) return the personal protective equipment to the employer; and
 - (b) inform the employer of the defect or other reason why the personal protective equipment does not provide the protection that it was intended to provide.
- (6) An employer shall immediately repair or replace any personal protective equipment returned to the employer under paragraph (5)(a).

RESPIRATORY PROTECTIVE DEVICES

When providing a respiratory device approved for a task the employer must ensure the following:

- **The device can provide the required level of protection for the worker.**
- **The device fits and has been properly fit-tested to the worker.**
- **The device is stored properly when not in use.**

Respiratory Protective Devices

- 91.(1) If a worker is likely to be exposed to dust, fumes, gas, mist, aerosol, vapour or other airborne contaminant that could be present in an amount that is harmful to the worker, an employer shall
- (a) provide an approved respiratory protective device, for use by the worker, that
 - (i) gives suitable and adequate protection to the worker from one or more airborne contaminants,
 - (ii) is the proper size for the worker's face,
 - (iii) makes an effective seal to the facial skin of the worker, if a tight fit is essential to the proper functioning of the respiratory protective device, and
 - (iv) has been fit-tested by a competent individual in an approved manner, where a tight fit is essential to ensure the worker is not exposed to one or more airborne contaminants that could be harmful to the worker;
 - (b) ensure that the respiratory protective device is regularly cleaned and maintained in an approved manner; and
 - (c) ensure that the respiratory protective device is kept, when not in use, in a convenient and sanitary location in which the device is not exposed to extremes of temperature or to any contaminant that could hinder the operation of the device.

Workers must receive adequate training and demonstrate ability to properly test, use and care for respiratory devices.

91. (2) If a respiratory protective device is provided to a worker under subsection (1), the employer shall ensure that the worker is
- (a) trained by a competent individual in the proper testing, maintenance, use and cleaning of the respiratory protective device and in its limitations;
 - (b) able to demonstrate that he or she
 - (i) understands the training provided under paragraph (a),
 - (ii) can test, maintain and clean the respiratory protective device, and
 - (iii) can use the respiratory protective device safely;
 - (c) required to and tests the respiratory protective device before each use;
 - (d) assessed according to an approved standard as being capable of wearing a respiratory protective device; and
 - (e) adequately informed of the reasons for the assessment required by paragraph (d).
- (3) An employer shall ensure that the training required by paragraph (2)(a) includes practical experience by the worker in an uncontaminated environment.
- (4) If a respiratory protective device is used only for emergency purposes, an employer shall ensure that a worker who could be required to use the respiratory protective device is given semi-annual refresher training in its safe use.

- 91.(5) An employer shall ensure that the following records are kept as long as the worker works for the employer and made readily available for inspection and examination by the Committee or representative, as the case may be:
- (a) records respecting fit-testing for each worker completed under subparagraph (1)(a)(iv);
 - (b) records of the results of assessments for each worker completed under paragraph (2)(d);
 - (c) records respecting training completed by each worker under subsection (2) and the practical experience referred to in subsection (3).
- (6) An employer shall ensure that records respecting the maintenance of atmosphere-supplying respirators used by a worker are kept and made readily available for inspection and examination by the Committee or representative, as long as that worker works for the employer.
- (7) A worker may, at any time, inspect and examine any records kept under subsection (5) or (6) respecting the worker.

- **Employers must ensure respiratory devices are inspected regularly.**
- **The inspection record must include specific information.**
- **If a device is defective, the employer must address it immediately.**

Inspection of Respiratory Protective Devices

92. An employer shall ensure that
- (a) any respiratory protective device for emergency use is thoroughly inspected by a competent individual not less than once every month and after each use;
 - (b) the date of each inspection made under paragraph (a) and the name of the individual who made the inspection are recorded and conspicuously displayed at the location where the respiratory protective device is stored; and
 - (c) any defects identified during the inspection carried out under paragraph (a) are corrected immediately by a competent individual or the respiratory protective device is taken out of service.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH)

Some situations are considered immediately dangerous to life or health (IDLH). IDLH atmospheres contain hazardous substances at a concentration that places the worker in immediate danger because they either:

- Impair the person's ability to leave the work area (self-rescue).
- Lead to irreversible health effects, including serious injury or death, in a matter of minutes.

Conditions considered IDLH include:

- A known contaminant at a concentration known to be IDLH.
- A known contaminant at an unknown concentration with the potential to be IDLH.
- An unknown contaminant at an unknown concentration.
- An untested confined space.
- An oxygen-deficient atmosphere.
- Firefighting.
- Contaminants at or above 20% of their lower explosive limit (LEL—the concentration at which the gas or vapour could ignite).

For more information see:

Centers for Disease Control and Prevention (CDC) Guide in National Institute for Occupational Safety & Health [NIOSH Pocket Guide To Chemical Hazards](#)

WorkSafe BC's Guide [Breathe Safer: How to Use Respirators Safely and Start a Respirator Program](#)

Source: WorkSafeBC (Workers' Compensation Board), used with permission, *Breathe Safer: How to Use Respirators Safely and Start a Respirator Program*, 2011, pg 9.

Working in Dangerous Atmospheres

93. (1) In this section, "immediately dangerous to life or health" means a condition in which a hazardous atmosphere exists to such an extent that a worker who is not using an approved respiratory protective device will suffer escape-impairing or irreversible health effects.
- (2) If a worker is required or permitted to enter an atmosphere that is immediately dangerous to life or health, an employer shall ensure that the worker is provided with and uses an approved atmosphere-supplying respirator that is
- (a) an open circuit SCBA that
 - (i) operates in a pressure demand or other positive pressure mode,
 - (ii) has a minimum rated capacity of 30 minutes,
 - (iii) is sufficiently charged to enable the worker to perform the work safely, and
 - (iv) is equipped with a low pressure warning device or an escape respirator;
 - (b) an airline respirator equipped with a full face-piece that
 - (i) operates in a pressure demand or other positive pressure mode, and
 - (ii) has an auxiliary supply of air sufficient to allow the worker to escape in case of failure of the primary air supply equipment; or

(c) a closed circuit SCBA.

- (4) An employer shall ensure that compressed air in an atmosphere-supplying respirator used by a worker in an atmosphere that is immediately dangerous to life or health meets approved purity requirements.

PART 18 CONFINED SPACE ENTRY

Precautions If Safe Atmosphere Not Possible

- 281.** (1) If a hazardous confined space cannot be purged and ventilated to provide safe atmosphere or a safe atmosphere cannot be maintained under section 280, an employer shall ensure that work is not carried out in the confined space unless it is carried out in accordance with the requirements of this section and section 403.
- (3) An employer shall ensure that a worker is provided with and required to use a respiratory protective device that meets the requirements of Part 7 if
- (a) the airborne concentration for a substance meets or exceeds the permissible contamination limit set out in Schedule O;
 - (b) oxygen deficiency or enrichment is detected; or
 - (c) the airborne concentration of any other substance could be harmful to the worker.

EXPOSURE TO CHEMICAL AND BIOLOGICAL SUBSTANCES

Employers must identify harmful and hazardous chemical or biological substances present at a work site, inform workers of health effects of exposure to the substances, and provide training for proper use of required PPE.

PART 21 CHEMICAL AND BIOLOGICAL SUBSTANCES

Respiratory Protective Devices

316. If it is not reasonably possible to reduce a worker's personal exposure to a chemical or biological substance to the contamination limit set out in Schedule O, an employer shall provide an approved respiratory protective device that meets the requirements of Part 7 and require the worker to use it.

Note: Working with asbestos, mould, silica, lead particulate, and abrasive blasting, and particularly for healthcare workers - cytotoxic drugs - require special attention to respiratory protection and require the use of approved respiratory protective devices, among other PPE.

PART 24 ASBESTOS

Personal Protective Equipment

374. (1) If effective local exhaust ventilation equipment is not used and an asbestos process results in the production of asbestos dust, an employer shall ensure that each

worker who could be exposed is provided with and uses

- (a) an approved respiratory protective device that is appropriate to the level of risk of the asbestos process and that meets the requirements of Part 7; and
- (b) approved protective clothing that, when worn, will exclude asbestos dust.

High Risk Asbestos Processes

378. (1) If a high risk asbestos process is in progress or has been completed, an employer shall ensure that workers are not required or permitted to enter the affected area without an approved respiratory protective device.

PART 25

SILICA AND ABRASIVE BLASTING

Personal Protective Equipment

387. (1) An employer shall provide, and require a worker to wear, a respiratory protective device and other personal protective equipment that meet the requirements of Part 7 if

- (a) the protective measures required by sections 385 and 386 are not reasonably possible; or
- (b) the worker carries out cleaning and maintenance work and could be exposed to dust from a silica process.

(3) For workers who could be exposed to dust resulting from abrasive blasting, an employer shall provide and maintain respiratory protective devices that meet the requirements of Part 7.

PART 31

ADDITIONAL PROTECTION FOR HEALTH CARE WORKERS

Cytotoxic Drugs

466. (1) In this section, “cytotoxic drugs” means drugs that

- (a) inhibit or prevent the functions of cells; and
- (b) are manufactured, sold or represented for use in treating neoplastic or other conditions. (médicaments cytotoxiques)

(6) (d) A program developed under subsection (5) must include details of engineering controls, work practices, hygiene practices and facilities, approved respiratory protective devices, approved eye or face protectors and other personal protective equipment and decontamination materials and equipment that are appropriate in the circumstances.

3 RESPIRATORY HAZARD CONTROLS

Respiratory protection is vital to safeguard the health and productivity of workers at risk of exposure to airborne hazards. Many occupations and jobs such as work in the automotive, construction, oil and gas, utilities, medical, research, and chemical industries involve the risk of inhaling harmful particles.

Respiratory hazards include airborne contaminants such as dust, mist, fumes, vapour, gas or oxygen deficient atmosphere. A respiratory hazard can be a particulate, gas or vapour, or a combination of types and more than one respiratory hazard can be present at the same time. For instance, *welding* may produce gases and fumes.

Decisions about Personal Protective Equipment (PPE) for respiratory protection form part of the hazard assessment process, the standard work site approach to dealing with potential hazards. There are five basic ways to control hazards. These controls form a hierarchy. Elimination is always the first control to consider. After that, proceed down the hierarchy until the control of last resort, PPE.

THE FIVE BASIC WAYS TO CONTROL HAZARDS AND EXAMPLES:

1. **Elimination**
 - Remove the hazard from the work site.
2. **Substitution**
 - Use a less harmful chemical.
3. **Engineering**
 - Mechanical ventilation.
 - Enclosure or isolation of a process or equipment.
 - Proper control and use of equipment.
 - Process modifications such as substitution with less hazardous materials.
4. **Administration**
 - Provide adequate training.
 - Reduce work times in contaminant areas.
 - Set up an effective respiratory program.
5. **Personal Protective Equipment**
 - Provide a suitable respiratory protective device.
 - Ensure respiratory equipment fit testing and maintenance.

The use of PPE does not prevent accidents or eliminate hazards. Respirators should not be the first choice for respiratory protection in workplaces. Only use respirators for protection from contaminants in the air if other hazard control methods are not practical or possible under the circumstances.

Training is required under the law.

PPE cannot achieve its full-protection potential without worker knowledge and cooperation.

“If a respiratory protective device is provided to a worker under subsection (1) the employer shall ensure that the worker is (a) trained by a competent individual in the proper testing, maintenance, use and cleaning of the respiratory protective device and in its limitations” (*OHS Regulations NT & NU, 91(2-3)*)

Training for PPE considered only for emergency use.

In the mining and chemical industries potential emergencies and dangerous leaks of gases such a methane or hydrogen sulfide requires additional safety precautions with availability of escape respirators.

“If a respiratory protective device is used only for emergency purposes, an employer shall ensure that a worker who could be required to use the respiratory protective device is given semi-annual refresher training in its safe use.” (*OHS Regulations NT & NU, 91(4)*)

Respirators should be used under the following conditions.

- When engineering or administrative controls are not feasible or adequate.
- While engineering or administrative controls are being instituted.
- During shut-down for maintenance, repair, or emergency.

Several controls may have to be put in place.

- Certain hazards may require multiple PPE solutions.
 - Working with chlorine requires respiratory and eye protection because chlorine irritates both the respiratory system and the mucous membranes of the eyes.

PPE design criteria cannot cover all eventualities.

- Take uncertainties into account when evaluating potential hazards.
 - Escape respirators must always be available to escape from zones where potential toxic or oxygen-deficient atmospheres are a permanent threat.

For more information see the [WSCC Hazard Assessment Code of Practice](#)

4 CSA STANDARDS

The Canadian Standards Association (CSA) is an accredited standards development organization and certification body. The standards they develop define requirements for reducing the risk of workplace injuries.

CSA Group test and certify products to Canadian standards and issue the CSA Mark for qualified products. Canadian Safety Standards can be found at <https://store.csagroup.org>



Identifying Mark of Approved Equipment

23. (1) This section applies in respect of equipment and personal protective equipment that is required by these regulations to be approved by an agency.

[NWT & NU Occupational Health and Safety Regulations, Section 23(1)]

CAN/CSA-Z94.4.18

CAN/CSA	Canadian Standards Association
Z94.4	Refers to the standard on <i>Selection, Use and Care of Respirators</i> .
2018	The last two digits indicate the year issued.

This fifth edition of CAN/CSA-Z94.4:18 *Selection, Use and Care of Respirators* supersedes all previous editions.

The standard is based on classification schemes and testing requirements set out by the National Institute for Occupational Health and Safety (NIOSH). It is applicable to non-emergency and emergency situations. The standard also sets out requirements for administration of an effective respiratory program.

CSA-Z94.4 is referenced by many other CSA OHS standards where respiratory protection is required, including CSA W117.2 on welding safety, CSA Z1006 on work in confined spaces, CSA Z1010 on work in extreme conditions, CAN/CGSB/CSA-Z1610 on protection of first responders, and CSA Z1640: PPE for entry into clandestine drug labs.

CAN/CSA-Z180.1-19

CAN/CSA	Canadian Standards Association
Z180.1	Refers to the standard on <i>Compressed Breathing Air and Systems</i> .
2019	The last two digits indicate the year issued.

CSA Z180.1 is a companion standard to CAN/CSA-Z94.4, providing specific requirements for compressed breathing air systems connected to supplied-air respirators.

CAN/CSA-Z94.1:21

CAN/CSA	Canadian Standards Association
Z94.4.1	Refers to the standard on <i>Performance of Filtering Respirators</i> .
2021	The last two digits indicate the year issued.

CSA Z94.4.1:21 *Performance of Filtering Respirators* is a new national standard for Canada with performance and testing requirements for filtering type respirators.

The purpose of the standard is to provide classification of respirator types and performance criteria that allow certification of respirators following requirements approved by the United States National Institute for Occupational Safety and Health (NIOSH) with some additional requirements.

The first edition of CSA Z94.4.1:21 covers filtering respirators for **particulate matter only**, addressing the priority need resulting from COVID-19, most notably the needs of Canadian health care and essential workers. This includes quantitative fit testing, shelf life, comfort and breathability requirements.

Out of scope. CSA Z94.4.1:21 does not address the following:

- Respirators with filters for gas/vapour removal.
- Respirators that operate in the atmosphere-supplying mode.
- Equipment that does not meet Level 1 Protections defined in CAN/CSA Z94.4-18 **such as surgical or cloth masks.**

CAN/CSA-Z1610-11 (R2021)

CAN/CSA	Canadian Standards Association
Z1610	Refers to the standard on <i>Protection of First Responders from Chemical, Biological, Radiological and Nuclear (CBRN) Events</i> .
2011	The last two digits indicate the year issued. Reaffirmed in 2021.

This standard was developed to apply to the Canadian environment. It specifies requirements for the selection, use, and care of PPE for first responders to a deliberate chemical, biological, radiological, or nuclear (CBRN) incident, including releases and contagious outbreak events. It is specifically targeted to fire, police, and medical first responders/receivers in the front line of the response.

MAKE SURE YOU USE THE MOST UP-TO-DATE STANDARD

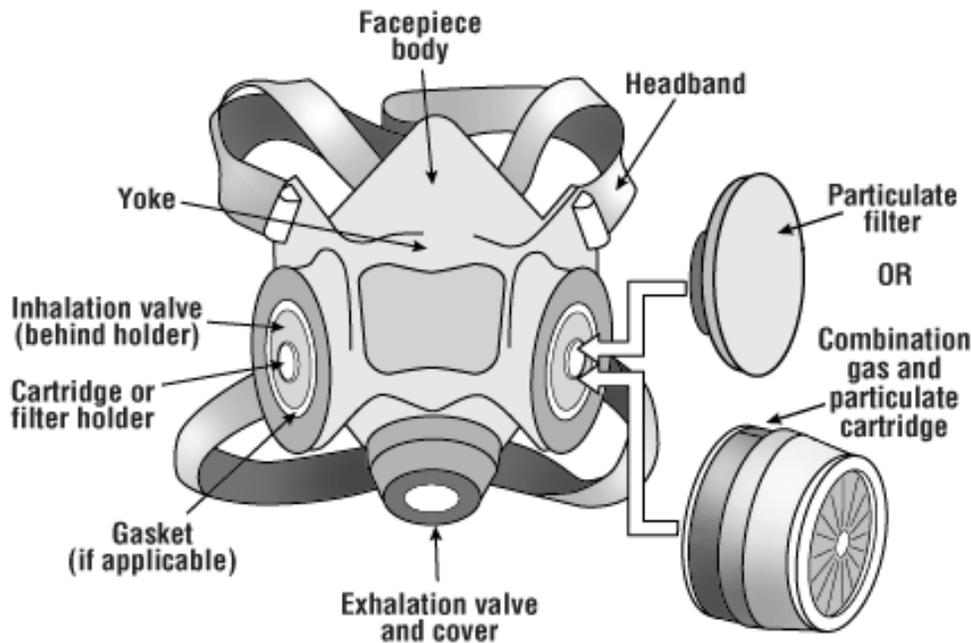
5 GENERAL INFORMATION

High quality respirators offer a wide range of respiratory protection solutions to protect workers against airborne hazards. This includes disposable respirators, Self-Contained Breathing Apparatuses (SCBA), Air Purifying Respirators (APR), Powered Air Purifying Respirators (PAPR), Supplied Air Respirators (SAR), escape respirators and accessories to air supplied systems.

Cartridges and filters offer protection from an array of different respiratory hazards. Choosing the right filter or cartridge for hazards caused by different chemicals or substances is vital for effective protection.

After selection, proper fit testing ensures the usefulness of respiratory protective equipment. A respirator program developed by employers for a specific workplace describes the procedures for choosing, using and taking care of respirators that match hazards to make sure workers receive the best protection.

Example of a Half-face Respirator



**The basic parts of a typical half-facepiece respirator are shown.
Two common options are illustrated on the right.
Both sides of the respirator would take the same type of filter or cartridge.**

Source: *Respirators – Respirator Care*, www.ccohs.ca/oshanswers/prevention/ppe/respcare.html, OSH Answers, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

6 CLASSES OF RESPIRATORS

The two main classes of respirators are air-purifying respirators (APRs) and supplied-air respirators (SARs).

6.1 AIR-PURIFYING RESPIRATORS

Air-purifying respirators (APRs) can remove contaminants in the air you breathe by filtering out particulates (e.g., dust, metal fumes, mists, etc.). Other APRs purify air by adsorbing gases or vapours on a sorbent (adsorbing material) in a cartridge or canister. They are tight-fitting and are available in several forms:

Mouth bit respirator

- Fits in the mouth and comes with a nose clip to hold nostrils closed - for escape purposes only.

Quarter-mask

- Covering the nose and mouth.

Half-face mask

- Covering the face from the nose to below the chin.

Full facepiece

- Covering the face from above the eyes to below the chin.

Respirators with a full facepiece also protect the eyes from exposure to irritating chemicals.

Examples of Air-Purifying Respirators (APRs):

- Particulate respirators (Also called dust, fume, and mist respirators or masks).
- Chemical cartridge respirators that can have a combination of chemical cartridges, along with a dust pre-filter. (This combination provides protection against different kinds of contaminants in the air).
- Gas masks (Contain more adsorbent than cartridge-type respirators and can provide a higher level of protection than chemical cartridge respirators).
- Powered air-purifying respirators (PAPRs).

6.2 SUPPLIED-AIR RESPIRATORS

Supplied-air respirators (SARs) supply clean air from a compressed air tank or through an air line. This air is not from the work room area. The air supplied in tanks or from compressors must meet certain standards for purity and moisture content (e.g., CSA Standard Z180.1-19: *Compressed Breathing Air and Systems*).

Supplied-air respirators may have either tight-fitting or loose-fitting respiratory inlets. Respirators with tight-fitting respiratory inlets have half or full facepieces. Types with loose-fitting respiratory inlets can be hoods or helmets that cover the head and neck, or loose-fitting facepieces with rubber or fabric side shields. These respirators are supplied with air through airlines.

Examples of Supplied-Air Respirators (SARs):

- Self-Contained Breathing Apparatus (SCBA).
- Airline supplied-air respirators.
- Protective suits that totally encapsulate the wearer's body and incorporate a life-support system.

6.3 COMBINATIONS

There are some combinations of airline respirators and SCBAs that allow workers to work for extended periods in oxygen-deficient areas or where there are airborne toxic contaminants. The auxiliary or backup SCBA source allows the worker to escape with an emergency source of air if the airline source fails.

There are also combination air-purifying and atmosphere supplying respirators. These devices will offer worker protection if the supplied-air system fails when the appropriate air-purifier units are selected. These cannot be used in oxygen-deficient areas or where the air concentration of a contaminant exceeds the IDLH level (i.e., immediately dangerous to life or health).

Source: *Respirators – Respirator Selection*, www.ccohs.ca/oshanswers/prevention/ppe/respslct.html, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

7 CARTRIDGES AND FILTERS

It is very important to make sure you are using the right filter or cartridge for the chemicals or substances present in the workplace.

Since filters capture particles, caution must be exercised to always check that these filters are not clogged as it makes it harder for air to pass through. Cartridges can also become "full" or saturated. It will stop working and "breakthrough" will occur – this term means that the gases or vapours will leak through the cartridge.

Both cartridges and filters must be replaced on a regular basis by using the manufacturer's recommendations (usually determined by using warning properties or end-of-service indicators).

7.1 CLASSES OF PARTICULATE FILTERS

There are different classes of particulate filters, depending on the particulate material. They are also classified based on levels of oil resistance and filter efficiency. Oil can break down certain types of filters which means it is important to know the materials you are working with at all times and always select the right cartridge for your respirator.

The main categories are:

- N series (Not resistant to oil): May be used in any atmosphere where there is no oil particulate.
- R series (Resistant to oil): May be used in any atmosphere where there is no oil particulate, or up to one shift where there is oil particulate present. "One shift" means eight hours of continuous or intermittent use.
- P series (Oil-Proof): May be used in any atmosphere, including those with oil particulates, for more than one shift. If the filter is used in atmospheres with oil particulates, contact the manufacturer to find out the service life of the filter.

Source: *Respirators – Respirator Selection*, www.ccohs.ca/oshanswers/prevention/ppe/respslct.html, OSH Answers, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

8 CHOOSING THE RIGHT RESPIRATOR

Choosing a respirator is a complicated matter. Experienced safety professionals or occupational hygienists, who are familiar with the actual workplace environment, are the staff who should select the proper respirator. They can choose a suitable respirator only after they have evaluated all relevant factors. This decision includes considering the limitations of each class of respirator.

Use the SDS for guidance on requirements of the particular respiratory hazard. The CSA Standard Z94.4-18 *Selection, Use and Care of Respirators* outlines a respirator selection decision logic model in more detail.

Before the proper respirator can be selected for a job:

- Identify the respiratory hazard.
- Evaluate the risk.
- Consider whether engineering controls are feasible.

The following questions represent part of the "decision logic" a safety professional or occupational hygienist can use when selecting a respirator:

- Is it for use in firefighting or emergencies?
- Is it for use in oxygen-deficient atmospheres (less than 18% oxygen in air; some jurisdictions say below 19.5%)?
- What is the nature of the hazard (chemical properties, concentration in the air, warning properties)?
- Is there more than one contaminant present (i.e. a mixture or more than one chemical)?
- Is the airborne contaminant a gas, vapour or particulate (mist, dust or fume)?
- Are the airborne levels below or above the exposure limit, or are they above levels that could be immediately dangerous to life or health?
- What are the health effects of the airborne contaminant (carcinogenic, potentially lethal, irritating to eyes, absorbed through the skin)?
- What are the characteristics of the operation or the process (e.g., hot temperature, confined space)?
- What activities will the worker be doing while wearing the respirator (e.g., strenuous work)?
- How long will the worker need to wear the respirator?
- Does the selected respirator fit the worker properly?
- Where is the nearest safe area that has respirable air?

Source: *Respirators – Respirator Selection*, www.ccohs.ca/oshanswers/prevention/ppe/respslct.html, OSH Answers, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

9 WEAR & USE OF RESPIRATORS

Several factors need to be considered with respirator use. Some of the most important factors are ensuring satisfactory fit, fit testing, and the respirator seal check before use.

“If a respiratory protective device is provided to a worker under subsection (1), the employer shall ensure that the worker is assessed according to an approved standard as being capable of wearing a respiratory protective device; and adequately informed of the reasons for the assessment required”

(OHS Regulations NT & NU, Respiratory Protective Devices, 91(2)(d)(e))

The medical and psychological fitness of a worker should be evaluated by a health care provider before someone works with a respirator, to make sure the worker is:

- Physically fit to carry out the work while wearing respiratory equipment.
- Psychologically comfortable (e.g., not claustrophobic) about wearing respirators.

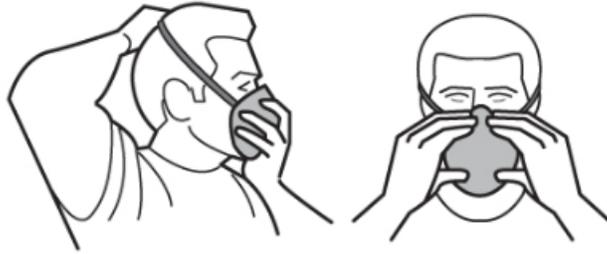
Follow the detailed instructions in the standard *CAN/CSA-Z94.4-18: Selection, Use and Care of Respirators*.

9.1 BEFORE WEARING A RESPIRATOR

The Canadian Centre for Occupational Health and Safety (CCOHS) recommends for respirator users to always:

- Report to your supervisor if there is any reason why you cannot wear your respirator safely (e.g., a change in medical condition, facial hair that may interfere with the seal, etc.)
- Use the respirator and filters/cartridges as assigned. They will have been selected to provide protection from the hazards that are present for that task.
- Check that the respirator is clean and in good condition before each use. Inspect for:
 - Condition of the parts (e.g., facepiece, harness, valves, filters, cartridges, etc.) for cracks, tears, holes, distortion or warping.
 - Tightness of the connections.
 - End-of-service life indicator (if present) or shelf-life dates.
 - Proper functioning of any alarms or other warning systems (if present).
- Know how to determine if the filters have reached their end-of-service ability.
- Do not wear any respirator that may be defective. Report concerns immediately to your supervisor.

9.2 HOW TO PUT ON A DISPOSABLE RESPIRATOR



Filtering facepiece respirators are those respirators in which the entire facepiece acts as the filter. These respirators usually cover half of your face, and are sometimes called "disposable" respirators.

In general, hold the respirator in your hand with the nosepiece near your fingertips. Place the mask over your nose and mouth, and hold with one hand. Using your other hand, pull the top strap over your ears. Pull the bottom strap behind your head and below your ears. If there is a clip, clip it behind your neck. If there is a metal nosepiece, mould it around your nose to create a proper seal.

9.3 HOW TO PUT ON A HALF FACEPIECE RESPIRATOR



Elastomeric facepieces are made of silicone, thermoplastic, or rubber material. One or more filters or cartridges are attached to the facepiece.

In general, adjust the straps so that the respirator fits tightly but does not dig into your face or leave red marks on your skin. The respirator should feel snug but comfortable. Straps should be placed under a hard hat or hood. Position the straps correctly – one strap should go above the ears and over the crown of your head, and the other below the ears and around the neck. If the respirator has adjustable straps, tighten or loosen them without removing the respirator.

Always follow the directions provided by the manufacture and your employer. These instructions describe how to put on a reusable elastomeric half-facepiece. Full face respirators would follow a similar process.

9.4 RESPIRATOR SEAL CHECK

Each time and every time a respirator is worn, you must check that the respirator is sealing properly to the face. Not all respirators will allow the wearer to temporarily block the inlet openings or valves, but these checks should be done whenever possible. Do not wear a respirator that does not seal properly.

Negative pressure seal check: Negative-pressure checks can be done on air-purifying respirators and other respirators with a tight fitting facepiece.

- Put on the respirator.
- Close or block the inlet opening(s) of the respirator so that when you inhale (breath in), no air enters the facepiece.
- Gently inhale, and hold your breath for at least 5 seconds.
- The facepiece should collapse (“squish in”) slightly on your face.
- If the facepiece remains collapsed while you hold your breath, the seal check is successful.
- If the facepiece does not remain collapsed, check that nothing is obstructing (blocking) the sealing surface adjust the facepiece and harness, and repeat the user seal check.



Positive pressure seal check: Positive-pressure seal checks can be done with respirators equipped with tight-fitting facepieces that have both inhalation and exhalation valves.

- Put on the respirator.
- Close or block the exhalation valve or breathing tube, or both.
- Exhale (breath out) gently.
- The respirator should expand (“puff out”) slightly.
- If a slight positive pressure can be maintained inside the facepiece without noticing any air leaking for 5 seconds, the seal check is successful.
- If a slight positive pressure does not occur, check that nothing is obstructing (blocking) the sealing surface adjust the facepiece and harness, and repeat the user seal check.



Seal checks for disposable respirators: A seal check can be done by placing both hands over the respirator itself, or by using a device provided by the manufacturer.

- Put on the respirator.
- Place both hands over the respirator. If there is a valve, block the valve with your hand.
- Breathe in and out.
- If you have a good seal, the facepiece should collapse slightly when you inhale.
- As you exhale, you should not feel air leaking out.
- If you have air leaks, check that nothing is obstructing (blocking) the sealing surface adjust the nose piece or straps, and repeat the user seal check.



Do not wear a respirator that cannot pass the seal checks successfully.

Source: *Respirators – Wearing a Respirator*, www.ccohs.ca/oshanswers/prevention/ppe/wearing.htm
OSH Answers, Canadian Centre for Occupational Health and Safety (CCOHS), Confirmed current *January 25, 2022*. Reproduced with the permission of CCOHS, 2022.

**The User Seal Check is Not a Substitute for the Required
Qualitative or Quantitative Fit Test**

10 RESPIRATOR FIT TESTING

Definition

Fit test: the use of a quantitative or qualitative method to evaluate the fit of a particular model, make and size of respirator on an individual.

Fit testing takes place after completion of a hazard assessment and selection of the correct respirator and filter or cartridges for the hazard. Under NT & NU *OHS Regulations* for Respiratory Protective Devices, 91(1)(a) the employer shall provide an approved respiratory protective device, for use by the worker, that is:

- the proper size for the worker's face,
- makes an effective seal to the facial skin if a tight fit is essential to proper functioning, and
- has been fit-tested by a competent individual in an approved manner .

The results of the fit test determine the specific model and size of the facepiece to select for an individual user. Fit testing is not required for loose-fitting respirators. But individuals must be clean shaven (12-14 hours) for fit testing and respirator use (CSA-Z94.4-18, sec. 9.2.2)

CAN/CSA-Z94.4-18 in clause 12 amended the requirement for health assessment as needed before fit testing, not only before respirator use.

When to do Fit Testing:

- After completion of user screening.
- After or during training.
- Prior to initial use of a tight-fitting respirator.
- When change in the user's physical condition may affect respirator fit.
- When there is a change in respirator (e.g. brand, model or size)
- When the user experiences discomfort or difficulty in completing a seal check.
- When there is a change in PPE that can affect the respirator.
- At least every two years.

Note on Fit Testing Frequency: CAN/CSA-Z94.4-18 recommends annual testing, with a requirement for at least every two years. Other major health and safety standards like OSHA 29CFR1910.134, ANSI Z88.10-2001, ISO 16975-3:2017 recommend annual testing.

The fit of your respirator should also be re-evaluated with any change such as losing or gaining weight or when fitted with new dentures because the shape of the face may change which will affect fit and the level of protection offered.

**For more detail see the Canadian Standard
CAN/CSA Z94.4-18: Selection, Use And Care Of Respirators.**

11 RESPIRATOR MAINTENANCE

A respirator must be well maintained to work properly. Clean a respirator regularly, inspect for damage, and replace missing parts. Maintain respirators according to the manufacturer's instructions. Refer to the manual or instruction sheet provided with the respirator.

11.1 CHECKLIST FOR CARE OF RESPIRATORS

General

- Inspect the respirator before and after each use and during cleaning.
- Inspect equipment designated for "emergency use" at least monthly, and after use.
- Replace all parts that are cracked, torn, broken, missing or worn.
- Follow the manufacturer's instructions and consult CSA Standard *Z94.4-18 Selection, Care and Use of Respirators* for information on the care, maintenance, and storage of respirators.

Facepiece

- Ensure that no holes or tears are present.
- Inspect for cracked, scratched or loose-fitting lenses and missing gaskets.
- Ensure that the metal nose clip forms easily over the bridge of the nose on disposable respirators.
- Make sure the facepiece edges are not rippled or distorted.
- For a full facepiece respirator, check for missing mounting clips.

Head Strap/Harness

- Check webbing for breaks.
- Look for deterioration of elasticity or fraying edges.
- Test excessively worn head harness.

Inhalation and Exhalation Valves

- Ensure the valve and valve seat are free of dust particles or dirt that may cause a poor seal or reduce efficiency.
- Replace any missing or defective valve covers.

Filter Elements

- Ensure the filter and mask are certified for use together.
- Check the filter to see that they are approved for the hazard.
- Inspect both the filter threads and facepiece threads for wear, make sure they are screwed together properly, and there is no cross threading.
- Check the filter housing for cracks or dents.
- Check the end of service life indicator for gas masks. Check the expiration date.

Air Supply System

- Inspect the air-supply hose and end-fitting attachments for breaks, cracks, or kinks.
- Test the tightness of connections.
- Ensure the proper operation and condition of all regulators, valves or other airflow device.
- Monitor the operation of air-purifying elements and carbon monoxide or high-temperature alarms.
- Check seams in suits or blouses for rips and tears.
- Ensure protective screens are intact and fit correctly over facepieces (abrasive blasting hoods and blouses).

Respiratory Battery Pack

- Follow the manufacturer's instructions for charging/discharging.
- Before recharging nickel-cadmium (NiCad) batteries, fully discharge them with a discharger designed for those batteries. If this is not done regularly, the NiCad batteries may not provide power for as long as the specifications state.
- Ensure that the batteries are fully charged before using them.

Repair, Cleaning and Storage

- Do not clean with solvents.
- Follow the manufacturer's instructions.
- Wash with a mild dish detergent or a combination of detergent and disinfectant. Use a brush and warm water (49-60°C or 120-140°F).
- Rinse with clean water, or rinse once with a disinfectant and once with clean water. The clean water rinse removes excess detergent or disinfectant that can cause skin irritation or dermatitis.
- Dry on a rack or clean surface or hang from a clothes line. Position the respirator so that the facepiece rubber will not "set" crookedly as it dries.
- Store the respirator at the end of each shift to protect it from dust, sunlight, heat, extreme cold, excessive moisture, and chemicals.
- Clean and disinfect respirators after each use, where appropriate.
- Permit only trained and qualified personnel to repair respirators.
- Do not mix parts from different manufacturers.
- Record all repairs and inspections.
- Remove dirt.
- Check for distortion caused by improper storage.

Source: *Respirators – Respirator Care*, www.ccohs.ca/oshanswers/prevention/ppe/respcare.html, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

11.2 CHECKLIST FOR SELF-CONTAINED BREATHING APPARATUS (SCBA)

- Inspect the SCBA unit before each use. Test and clean after each use.
- Inspect the equipment designated for "emergency use" at least monthly and after each use.
- Follow the manufacturer's instructions and CSA Standard Z94.4-11 (R2016) for care and maintenance.
- Permit only trained, manufacturer-certified personnel to maintain SCBA.
- Do not mix parts from different manufacturers.
- Maintain a complete record for each SCBA facepiece and cylinder.

Facepiece

- Disconnect the facepiece from the breathing apparatus. Wash alone in warm (49-60 °C or 120-140 °F) soapy water using a mild dish detergent.
- Rinse the water through the facepiece by placing the palm of the hand over the breathing tube connector on the exhalation-valve body.
- Remove excess water with a paper towel or lint-free cloth.
- Allow to air dry.
- Sanitize according to the manufacturer's instructions.
- Check for tears or cracks in the rubber.
- Check head strap for deterioration.
- Examine lenses for cracks, excessive scratching or other deformities.
- Check rings and clamps securing the lens for bends or bulges in the metal.
- Check the exhalation valve to ensure that it is properly located and that the valve cover is in place.
- Test the exhalation valve. Block the air intake opening and exhale gently. If the exhalation valve is not working properly, a heavy blow-by will be felt at the temples. Inhale and a partial vacuum will be formed.
- Do not mix demand and pressure-demand facepieces and regulators.

Regulator

- Check the regulator, breathing-tube threads, pressure gauge, and bypass and mainline valves for impact damage.
- Store with the cylinder valve completely closed.
- Bleed off air remaining in the regulator after each use, following manufacturer's instructions.

Breathing tube

- Stretch the breathing tube and check for cracks, tears and punctures.
- Check gaskets.
- Check clamps and rings to ensure that they are tight, properly located, not dented and not excessively corroded.
- Wash the breathing tube separately and allow to air dry. If it is permanently attached to the facepiece, allow the breathing tube to dry for several days before using.

High-pressure hose

- Check the hose for cuts, bubbles and abrasions.
- Check the fitting between the high-pressure hose and the regulator for damage.

Audible alarm

- Check the audible alarm for damage.
- Clean bells or whistles.
- Ensure that the alarm is working. If the alarm does not go off when the pressure reaches 20-25% of service time, the unit is defective. Remove the unit from service.

Backpack

- Inspect the straps of the backpack for excessive wear, broken stitching, and damaged or missing hardware.

Cylinder

- Ensure cylinders are hydrostatically tested as set out in CSA Standard Z94.4-18, *Selection, Use and Care of Respirators*.
- Inspect for cuts or gouges that can cause the unraveling of the composite fibers of the cylinder overwrap.
- Check unwrapped cylinders for impact damage.
- Check for evidence of exposure to heat. Look for discoloured paint or melted gauge lenses.
- Ensure air meets air quality set out in CSA Standard Z180.1-19, *Compressed Breathing Air and Systems*.

Cleaning the rest of the unit

- Remove backpack, cylinder and regulator assembly.
- Clean with water, or soapy water.
- Wipe the regulator, high-pressure hose, audible alarm, air cylinder, backpack and harness with a damp cloth.
- Dry with a cloth.

Source: *Respirators – Respirator Care*, www.ccohs.ca/oshanswers/prevention/ppe/respcare.html, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

12 RESPIRATOR PROGRAM

Employers should have a written respirator program that describes the proper procedures for selecting, maintaining, and operating respiratory protective equipment. The correct use of a respirator is as important as selecting the proper respirator.

The respirator program must also address how to find out what hazards are present, how much protection the workers will need, and describe how to wear and look after the respirator.

Without a complete respiratory protection program, people will probably not receive the best protection from a respirator, even if it is the correct choice for a specific job.

A respiratory protection program includes several components:

- Hazard identification and control
- Exposure assessment
- Respirator selection
- Respirator fit-testing
- Training program
- Inspection and record keeping
- Cleaning and sanitizing respirators
- Repairing and maintaining respirators
- Proper storage of respirators
- Health surveillance
- Standard operating procedures (available in written form)
- Program evaluation

Source: *Respirators – Respirator Selection*, www.ccohs.ca/oshanswers/prevention/ppe/respslct.html, *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), June 4, 2018. Reproduced with the permission of CCOHS, 2022.

**For more detail see the Canadian Standard
CAN/CSA Z94.4-18: *Selection, Use And Care Of Respirators.***

Code of Practice

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION

Workers' Safety & Compensation Commission
Northwest Territories and Nunavut

WSCC Emergency Reporting
24-hour Incident Reporting Line

1 800 661-0792

WSCC



If you would like this Code of Practice in another language, please contact us.