



Saskatchewan Association for  
Safe Workplaces in Health

# Respiratory Fit Testing (RFT) Program

## Protocols and Resources

**2<sup>nd</sup> Edition – Feb 2026**  
revisions: April 2021, May 2025

---

### **Disclaimer**

This program is provided on an “as is” basis. Due to the diverse conditions under which this program may be applied, it is provided to you without any warranties or representations expressed or implied. SASWH, its officers, directors, employees and agents do not accept any liability or responsibility for recourse, claims, causes of action of any kind whatsoever, in respect of all or any personal harm or injury, injury to others or property loss arising out of or connected with preparation for, participation in or application of the procedures in this program.

---

### **Acknowledgements**

SASWH gratefully acknowledges Mary Anderson, Saskatchewan Health Authority - Swift Current, for the collaborative effort to develop the Respiratory Fit Tester Protocols and Resources.



---

## Table of Contents

Fit Tester Training and Competencies .....	8
Occupational Health and Safety Regulations, 2020, applying to RFT .....	4
Introduction .....	8
Roles and Responsibilities.....	10
Hazard Assessment.....	11
Respirator Selection .....	12
Respirator Fit Test User Screening Form.....	14
User Orientation and Training.....	15
Fit Test Preparation .....	17
QLFT Fit Testing .....	19
QNFT Fit Testing .....	20
Fit Test Documentation .....	21
Respirator Issuance and Practical Use .....	21
Cleaning, inspection, maintenance, and storage of respirators.....	21
Recording .....	21
Overview of Orientation and Forms.....	21
Summary .....	22

This RFT program is based on and references the CSA Standard CAN/CSA Z-94.4-18 (2023) (CSA Standard). Refer to this CSA Standard for specifics/details, definitions, tables and Annexes referenced in this resource.

### Fit Tester Training and Competencies

Fit testers completing SASWH's course will require specific training on equipment for qualitative and/or quantitative fit testing used by their employer (function, testing, cleaning, maintenance, etc.). This course applies principles of qualitative and/or quantitative fit testing required to conduct fit testing.

To be competent, fit testers must be qualified through training, knowledge, and experience to conduct the appropriate tests that will help ensure users are protected from hazards during respirator use:

- The fit test shall be used to verify the selection of the specific make, model and size of a tight-fitting respirator for individual users.
- All workers requiring a tight-fitting respirator must be fit tested by a competent person in an approved manner.
- Employers must have a selection of respiratory protection devices to ensure a comfortable fit and effective seal for all workers. One size does not fit all.
- **The fit tester must not alter or adjust the respirator in any way that differs from the manufacturer's specifications to make it fit.**

#### Competencies required to become a Fit Tester:

- be a worker with job duties that allow for the time to prepare for and provide fit testing.
- have the skill and ability to complete fit testing.
- have effective observation, listening and clear communication skills.
- complete the Train the Tester course. This course includes qualitative and/or quantitative fit testing methods.
- delivers fit testing as outlined in the Protocols and Resources.

Fit testers attending the train the tester must present themselves in a manner that meets the CSA Standards for fit testing, e.g. clean-shaven, no respirator interference.

Following the successful completion of SASWH's train the tester program, the fit tester will be approved to perform fit testing (qualitative and quantitative) for their employer. Successful completion requires active involvement in discussion, as well as practice and return demonstration of the fit testing process.

The fit testing process includes:

- open and respectful discussion for everyone
- fit tester's clear explanation to the worker of the fit testing process
- providing adequate time for each worker to be fit tested to practice and provide a return demonstration of proper donning, doffing and performing seal checks for the respirator
- providing adequate time for the worker to practice and provide a return demonstration of disassembly, cleaning and reassembly of the elastomeric respirator

The fit testing process provides the worker training on the use, selection and care of a respirator. This meets the definition of *train* as stated in the *Saskatchewan Employment Act*:

**Interpretation 3-1(1)(ff)** "train" means to give information and explanation to a worker with respect to a particular subject-matter and require a practical demonstration that the worker has acquired knowledge or skill related to the subject-matter.

Following trainer certification and before fit testing, fit testers must have a solid understanding of the *Fit Tester Protocols and Resources* and the current CSA Standard. The resources give the fit tester the process and forms required for fit testing.

Employers authorized by SASWH to provide fit testing have access to resources via SASWH's website. Resources can be reproduced but not altered or edited. Training aids, additional learning activities and the resource order form are also available. Visit [www.saswh.ca](http://www.saswh.ca), and log in (top right – blue tab) using the case-sensitive username and password (enter it exactly as it is shown).

<b>Semi-secure login:</b>	<b>Username: RFT1</b>
<a href="http://WWW.SASWH.ca">WWW.SASWH.ca</a>	<b>Password: RFT2025Testers!</b>

A fit tester will require **re-approval every 2 years** by attending SASWH's fit tester re-certification session. A fit tester will be eligible for re-approval so long as they have fit tested a minimum of 5 workers in the previous two years. This session will include discussion and practice, including a review of the current CSA Standards, the process for qualitative and/or quantitative fit testing, along with a review of the required documentation.

<b>To maintain the status of a fit tester, testers must:</b>
<ul style="list-style-type: none"> <li>▪ attend a fit tester re-certification session at least once every two years; and</li> <li>▪ fit tested a minimum of 5 workers in the previous two years</li> </ul>

When conducting fit testing sessions, ensure to reference the CSA Standard and the relevant documentation forms. It is acceptable to read sections to ensure clarity; refrain from memorizing the information, as key information and/or steps for fit testing may be inadvertently missed.

Fit testers and instructors may want to use a “parking lot/park-aide” approach to record any questions or concerns that may not be answerable or problem-solved during fit testing.

**Consistency When Fit Testing**

Orientation, Respirator User Screening Form, and the process of fit testing (qualitative and/or quantitative) **must** always be delivered with consistency.

**Supplies for fit testing training sessions:**

Orientation	<ul style="list-style-type: none"> <li>▪ a presentation can be provided to a group (a laptop, projector, extension cord and screen/blank wall for a PowerPoint presentation may be needed); alternatively, each worker being fit tested can read and sign the orientation (self-directed learning)</li> </ul>
Respirator User Screening Form	<ul style="list-style-type: none"> <li>▪ This form must be completed prior to any fit testing being performed.</li> </ul>
Respirator User Tracking Form	<ul style="list-style-type: none"> <li>▪ This form must be completed and provided to the employer for their due diligence in tracking the fit testing workers have received.</li> </ul>
NIOSH/CSA-approved respirators only	<ul style="list-style-type: none"> <li>▪ elastomeric and/or disposable. Various sizes of respirators are needed to do fit testing.</li> <li>▪ Respirators must be approved by NIOSH.</li> </ul>
Mirror	<ul style="list-style-type: none"> <li>▪ to assist the worker in evaluating the fit and positioning of the respirator and any other personal protective equipment (PPE)</li> </ul>

Equipment/supplies for qualitative fit testing	<ul style="list-style-type: none"> <li>▪ hood, collar, nebulizer, solution</li> </ul>
Equipment/supplies for quantitative fit testing	<ul style="list-style-type: none"> <li>▪ Port-a-count/AccuFIT, humidifier, or particulate generator</li> </ul>
General supplies	<ul style="list-style-type: none"> <li>▪ pens, folders/envelopes for completed forms to help organize the documentation</li> <li>▪ Safety Data Sheet(s) (SDS) for the sensitivity, Bitrex and/or Saccharine solution used with qualitative fit testing</li> <li>▪ SDS for the alcohol solution used with the equipment for quantitative fit testing</li> <li>▪ water for participants of qualitative fit testing</li> <li>▪ stickers/form/wallet cards: providing workers with successful respirator make/model/size</li> <li>▪ always consider additional PPE/requirements based on the current situation (e.g., during pandemic)</li> </ul>

**Safety First - Assess for Risks Before Training Sessions Take Place**

**Self-risk assessment:**

Ensure a self-risk assessment is completed to identify where risks can be eliminated or managed. Considerations:

- ensure the fit tester can clearly communicate fit testing requirements and procedures to the worker
- a fit tester’s own sensitivity to Bitrex; consider wearing a respirator, gown and appropriate gloves when fit testing
- is the fit tester equipped to handle an adverse reaction? Who would the fit tester contact in that event? Is the fit tester aware of the emergency protocol for the area where fit testing is being completed?

**Equipment risk assessment:**

Ensure an equipment risk assessment is completed to identify where risks can be eliminated or managed. Considerations:

- equipment has been maintained according to manufacturer’s guidelines (e.g., calibration, cleaning of nebulizers, humidifier or particulate generator for quantitative testing)
- check all furniture and equipment to ensure these items do not pose a risk of injury

**Environment risk assessment:**

Ensure an environment risk assessment is completed for the room/s to identify where risks can be eliminated or managed. Considerations:

- loose tile/carpet, burnt out lightbulbs
- proximity to hazards/violence/excessive noise/odours/access/exits
- for qualitative - rooms are to be well ventilated
- for quantitative - a smaller room may be better for the count of air particulates

**Object (and task) risk assessment:**

Ensure an object (and task) risk assessment for the items used in training to identify where risk can be eliminated or managed. Considerations:

- weight of the objects
- sharp edges
- safely accessible
- appropriate handles

**Reporting, documenting, and communicating identified risks**

Defective equipment and/or items are not to be used during training. Report these risks, including how they were managed or eliminated, to the appropriate manager.

Some Occupational Health and Safety (OH&S) legislation that applies to RFT includes the following regulations. Reference these regulations when needed.

### ***The Occupational Health and Safety (OH&S) Regulations, 2020***

#### ***General duties of employers***

***3-1*** The duties of an employer at a place of employment include:

- (a) the provision and maintenance of plant, systems of work and working environments that ensure, as far as is reasonably practicable, the health, safety and welfare at work of the employer's workers;*
- (b) arrangements for the use, handling, storage and transport of articles and substances in a manner that protects the health and safety of workers;*
- (c) the provision of any information, instruction, training and supervision that is necessary to protect the health and safety of workers at work; and*
- (d) the provision and maintenance of a safe means of entrance to and exit from the place of employment and all worksites and work-related areas in or on the place of employment.*

#### ***Occupational health and safety program***

***3-11(1)*** Subject to subsection (2), an occupational health and safety program required by section 3-20 of the Act must include:

- (a) a statement of the employer's policy with respect to the protection and maintenance of the health and safety of the workers;*
- (b) the identification of existing and potential risks to the health or safety of workers at the place of employment and the measures, including procedures to respond to an emergency, that will be taken to reduce, eliminate or control those risks;*
- (c) the identification of internal and external resources, including personnel and equipment, that may be required to respond to an emergency;*
- (d) a statement of the responsibilities of the employer, the supervisors and the workers;*
- (e) a schedule for the regular inspection of the place of employment and of work processes and procedures;*
- (f) a plan for the control of any biological or chemical substance handled, used, stored, produced or disposed of at the place of employment and, if appropriate, the monitoring of the work environment;*
- (g) a plan for training workers and supervisors in safe work practices and procedures, including any procedures, plans, policies or programs that the employer is required to develop pursuant to the Act or any regulations made pursuant to the Act that apply to the work of the workers and supervisors;*
- (h) a procedure for the investigation of accidents, dangerous occurrences and refusals to work pursuant to section 3-31 of the Act at the place of employment;*
- (i) a strategy for worker participation in occupational health and safety activities, including audit inspections and investigations of accidents, dangerous occurrences and refusals to work pursuant to section 3-31 of the Act; and*
- (j) a procedure to review and, if necessary, revise the occupational health and safety program at specified intervals that are not greater than 3 years and whenever there is a change of circumstances that may affect the health or safety of workers.*

**Part 7****Personal Protective Equipment****Use of equipment required**

*7-1(1) If it is not reasonably practicable to protect the health and safety of workers by design of the plant and work processes, suitable work practices or administrative controls, an employer or contractor shall ensure that every worker wears or uses suitable and adequate personal protective equipment.*

*(2) If personal protective equipment will not effectively protect a worker, an employer or contractor shall, if reasonably practicable, provide alternative work arrangements for that worker.*

**General responsibilities**

*7-2(1) If an employer or contractor is required by these regulations or any other regulations made pursuant to the Act to provide personal protective equipment, the employer or contractor shall:*

*(a) supply approved personal protective equipment to the workers at no cost to the workers;*

*(b) ensure that the personal protective equipment is used by the workers;*

*(c) ensure that the personal protective equipment is at the worksite before work begins;*

*(d) ensure that the personal protective equipment is stored in a clean, secure location that is readily accessible to workers;*

*(e) ensure that each worker is aware of the location of the personal protective equipment and trained in its use;*

*(f) inform the workers 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 a worker:*

*(i) is suitable and adequate and a proper fit for that worker;*

*(ii) is maintained and kept in a sanitary condition; and*

*(iii) is removed from use or service when damaged.*

*(2) If an employer or contractor requires a worker to clean and maintain personal protective equipment, the employer shall ensure that the worker has adequate time during normal working hours without loss of pay or other benefits for this purpose.*

*(3) If reasonably practicable, an employer or contractor shall make appropriate adjustments to the work procedures and the rate of work to eliminate or reduce the danger or discomfort to the worker that may arise from the worker's use of personal protective equipment.*

*(4) A worker who is provided with personal protective equipment by an employer or contractor 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 was intended for, the worker shall:*

*(a) return the personal protective equipment to the employer or contractor; and*

*(b) inform the employer or contractor 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 or contractor shall immediately repair or replace any personal protective equipment returned to the employer or contractor pursuant to clause (5) (a).*

**Respiratory protective devices**

**7-3(1)** If a worker is likely to be exposed to dust, fumes, gas, mist, aerosol or vapour or any airborne contaminant that may be present in any amounts that are harmful or offensive to the worker, an employer or contractor shall:

(a) provide an approved respiratory protective device for use by the worker that:

- (i) provides suitable and adequate protection to the worker from one or more airborne contaminants;
- (ii) is the proper size for the worker's face;
- (iii) if a tight fit is essential to the proper functioning of the respiratory protective device, makes an effective seal to the facial skin of the worker; and
- (iv) if a tight fit is essential to ensure the worker is not exposed to one or more airborne contaminants to an extent that may pose a risk of significant harm to the worker, has been fit-tested by a competent person in an approved manner;

(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 respiratory protective device is not exposed to extremes of temperature or to any contaminant that may inactivate the respiratory protective device.

(2) If a respiratory protective device as required by subsection (1) is provided to a worker, the employer or contractor shall ensure that the worker:

(a) has been trained by a competent person in the proper testing, maintenance, use and cleaning of the respiratory protective device and in its limitations;

(b) can demonstrate that the worker:

- (i) understands the training provided pursuant to clause (a);
- (ii) can test, maintain and clean the respiratory protective device; and
- (iii) can use the respiratory protective device safely;

(c) tests the respiratory protective device before each use;

(d) is assessed according to an approved standard as being capable of wearing a respiratory protective device; and

(e) is adequately informed respecting the reasons for the assessment required pursuant to clause (d).

(3) An employer or contractor shall ensure that the training required by clause (2) (a) includes practical experience by the worker in an uncontaminated environment.

(4) If respiratory protective devices are used only for emergency purposes, an employer or contractor shall ensure that a worker who may be required to use a respiratory protective device is given semi-annual refresher training in its safe use.

(5) An employer shall ensure that the following records are kept as long as the worker who was provided with a respiratory protective device is employed by the employer and that the following records are made readily available for inspection and examination by the committee or the representative, as the case may be:

(a) records respecting fit-testing for each worker that is completed pursuant to subclause (1) (a) (iv);

(b) records respecting the results of assessments for each worker that are completed pursuant to clause (2) (d);

(c) records respecting training completed by each worker pursuant to subsections (2) and (3).

(6) An employer shall ensure that any records mentioned in clause (5) (b) respecting a worker that are made available for inspection and examination pursuant to subsection (5) do not disclose any personal health information as defined in The

*Health Information Protection Act respecting the worker, unless the worker agrees to that disclosure.*

*(7) An employer shall ensure that records respecting the maintenance of atmosphere-supplying respirators are kept and made readily available for inspection and examination by the committee or the representative as long as the worker who was provided with an atmosphere-supplying respirator is employed by the employer.*

*(8) A worker may, at any time, inspect and examine any records kept pursuant to subsection (5) or (7) that relate to the worker.*

***Purging and ventilating of unsafe atmosphere***

***18-8(1)*** *In addition to the requirements of section 25-11, if a concentration of a toxic, flammable or explosive substance is present or an oxygen enrichment or deficiency exists in a hazardous confined space, an employer shall ensure that the hazardous confined space is:*

*(a) purged and ventilated before a worker is allowed to enter the space, so that:*

*(i) any hazard associated with a toxic, flammable or explosive substance is reduced to the extent that is possible or eliminated; and*

*(ii) an oxygen content of not less than 19.5% and not more than 23% is ensured; and*

*(b) continuously ventilated at all times during which the worker occupies the hazardous confined space, to maintain a safe atmosphere.*

*(2) If ventilation is used to reduce or eliminate a hazard pursuant to subsection (1), an employer shall ensure that a competent person tests the atmosphere to determine that the confined space is safe for entry by a worker:*

*(a) before a worker enters the confined space;*

*(b) if all workers have vacated the confined space, before any worker re-enters the confined space;*

*(c) on the request of a worker who is required or permitted to enter the confined space; and*

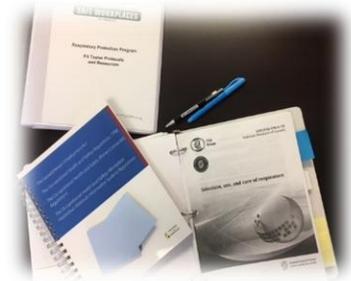
*(d) continuously if any condition in the confined space may change and put the worker's health or safety at risk.*

***Respiratory protective devices***

***21-8*** *If it is not reasonably practicable to reduce a worker's personal exposure to a chemical substance or biological substance to the contamination limit set out in Table 18 of the Appendix, an employer shall provide an approved respiratory protective device that meets the requirements of Part 7 and require the worker to use it.*

## Introduction

The potential of air quality hazards exists in every workplace in the province. Some can be Immediately Dangerous to Life and Health (IDLH), such as the presence of hydrogen sulfide (H<sub>2</sub>S) in the oil and gas industry. Some hazards, such as mould, can cause long-term health effects. Whatever the hazards, employers are required by legislation to assess their worksites, evaluate the hazards, eliminate them where possible, and when other controls are not possible, provide appropriate Personal Protective Equipment (PPE) and ensure employees are properly trained to use it.



## Learning Outcomes for Fit Testing Train the Tester

By the end of the session, participants will be able to:

- Explain the requirements of Saskatchewan's occupational health and safety legislation related to respiratory fit testing.
- Conduct a hazard assessment to determine the need for respiratory protection.
- Identify and select the appropriate type of respirator based on the hazard and work environment.
- Demonstrate an understanding of qualitative and/or quantitative fit testing procedures.
- Participate in or facilitate orientation and training related to respirator use.
- Understand the process for health surveillance, including completion of the respirator user screening form.
- Maintain accurate records of fit testing, training and program elements.
- Perform cleaning, inspection, maintenance, and storage of respirators according to manufacturer's recommendations.
- Apply the principles of qualitative fit testing (option: practice with water rather than Bitrex) and/or
- Apply the principles of quantitative fit testing (practice with a Porta-Count, AccuFIT).

Along with the legislation that was referenced previously, workers in Saskatchewan have three rights.

### Three Rights of Workers

Saskatchewan's OH&S legislation has also given every worker, including managers and supervisors, three basic rights:

1. The right to know.
2. The right to participate.
3. The right to refuse work that *is believed to be unusually dangerous*.

Right to Know	Right to Participate	Right to Refuse
<ul style="list-style-type: none"> <li>• Every worker has a right to be informed about the hazards at work, trained to recognize those hazards; and trained to protect themselves from those hazards.</li> <li>• This right is built into all regulations where information and training could help to protect workers. Workers must use the information and instructions provided.</li> </ul>	<ul style="list-style-type: none"> <li>• The occupational health committee (OHC) or the OH&amp;S representative is the principal vehicle for worker participation in the workplace. It is the forum for cooperative involvement of every worker, at every level.</li> <li>• Workers' participation assists in developing a strong safety culture. Workers participate by: <ul style="list-style-type: none"> <li>▪ being knowledgeable regarding their rights and responsibilities under the legislation;</li> <li>▪ asking for information from the supervisor;</li> <li>▪ reporting health and safety concerns;</li> <li>▪ discussing health and safety concerns at meetings;</li> <li>▪ working safely;</li> <li>▪ consulting with Saskatchewan Ministry of Labour Relations and Workplace Safety's occupational health officer (OHO);</li> <li>▪ assisting in inspections and investigations; and,</li> <li>▪ participating in safety; workers assist in cultivating a culture of safety.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• A worker has the right to refuse work that the worker has <i>reasonable grounds to believe is unusually dangerous</i>. The unusual danger may be to the worker or to others. This right is set out in Part III, Division 5 of the Act, section 3-31.</li> <li>• An unusual danger could include: <ul style="list-style-type: none"> <li>▪ a danger that is not normal for the job</li> <li>▪ a danger that would normally stop work</li> <li>▪ an imminent danger and in contravention of the Act and Regulations</li> <li>▪ a situation for which the worker isn't properly trained, equipped or experienced.</li> </ul> </li> <li>• The right to refuse is the right of an individual and not the right of a group. During a refusal, the refusing worker is protected from discriminatory action through the Act (PART III, Division 5, 3-35)</li> </ul>

The regulations state that employees must know the hazards associated with their job, how to protect themselves, and the signs and symptoms of overexposure. It is the employer's responsibility to develop policies and programs within their facilities that address area-specific hazards.

Employees must also have access to, and be knowledgeable in, other policies and safe work procedures that may have to be used in conjunction with respiratory protection.

The Saskatchewan Employment Act (SEA) defines "competent" as possessing the knowledge, experience, and training to perform a specific task. (SEA, 3-1(1e)). OHS Regulations require the employer to ensure that if a respirator is provided to a worker, the worker must be "trained by a competent person in the proper testing, maintenance, use and cleaning of the respiratory protective device and in its limitations." (Reg. 7-3(2a))

### The Purpose of Fit Testing

The purpose of a qualitative or quantitative fit test is to confirm that the worker can achieve an effective seal and a comfortable fit with the selected tight-fitting respirator. The fit test also ensures the individual can competently don and doff the respirator, inspect it, and perform an appropriate user seal check.

Fit testing also helps ensure each worker is matched with the correct make, model, and size of respirator to achieve a reliable seal under expected work conditions. For this reason, a range of respirator sizes and models should be available to accommodate individual workers' needs.

**Roles and Responsibilities**

In respiratory protection programs, both legislative requirements and CSA Standards, outline essential responsibilities to ensure worker safety. *Occupational Health and Safety (OH&S) Regulations, 2020, General Responsibilities, 7-2 (4)*, specify the duties of workers, including the proper use and care of personal protective equipment, while CSA Standard - CAN/CSA-Z94.4-18 (R2023), describes the role of the fit tester, who is responsible for conducting hands-on respirator fit testing and training. Together, these requirements ensure workers are properly fitted, trained, and equipped to use respiratory protection safely and effectively.

The current CSA Standard - CAN/CSA-Z94.4-18 (R2023) Selection, use, and care of respirators is the Canadian national standard. It provides guidelines for workplace respiratory and fit testing programs.

A respiratory protection program shall consist of the following components:

CAN/CSA-Z94.4-18 (R2023)	Aligned with OH&S Regulations, 2020
Roles and responsibilities: Clause 5	General duties of employers: 3-1 General duties of workers: 3-2 Supervision of work: 3-6
Hazard assessment: Clause 6	Exposure control plan: 6-22 Occupational health and safety program: 3-11
Respirator selection: Clause 7	Respiratory protective devices: 7-3, 21-8
Training: Clause 8	Respiratory protective devices: 7-3 General duties of employers: 21-1 Training of workers: 3-8
Respirator fit testing: Clause 9	General responsibilities: 7-2 Respiratory protective devices: 7-3
Use of respirators: Clause 10	General responsibilities: 7-2
Cleaning, inspection, maintenance, and storage of respirators: Clause 11	Exposure control plan: 6-22 General responsibilities: 7-2 Respiratory protective devices: 7-3 Inspection of respiratory protective devices: 7-4
Health surveillance: Clause 12	Respiratory protective devices: 7-3
Program evaluation: Clause 13	Exposure control plan: 6-22 General duties of employers: 21-1
Recordkeeping: Clause 14	Occupational health and safety program: 3-11 Respiratory protective devices: 7-3

Included in the roles and responsibilities of a respirator fit tester, the fit tester must meet specific competencies according to the CSA Standard - CAN/CSA-Z94.4-18 (R2023)

**Fit testing (Clause 8.1.4)**

The fit tester must be able to perform fit tests correctly, ensure the user gets a proper seal and comfort, manage the testing process, interpret results, and document all required information.

**Instruction (Clause 8.1.5)**

Instructors must understand the respiratory protection program and teach participants about:

- a) program policies, procedures, and responsibilities;
- b) workplace respiratory hazards and their health effects;

- c) why specific respirators are chosen and where to get more information; and
- d) what to do in an emergency.

**Care and practical use (Clause 8.1.6)**

The tester must be competent to provide a practical evaluation of the care, use and maintenance of respirators

**Limitations (Clause 8.1.7)**

Training must include all information from manufacturers and the Saskatchewan OH&S Regulations and applicable standards on the limitations of the protection provided by respirators. The packaging on the respirator box or an informational insert from the manufacturer would indicate the cautions/limitations of that specific respirator.

Before fit testing begins, it is important to understand what respiratory hazards may be present in the workplace. Knowing the types and levels of airborne contaminants helps ensure the right respirator is chosen and that the fit test reflects actual working conditions.

**Hazard Assessment****Hazards**

There are two main types of respiratory hazards in the workplace: unsafe atmosphere and airborne contaminants.

**1. Unsafe Atmosphere:** Where the potential for an oxygen-deficient or oxygen-enriched atmosphere exists, the oxygen concentration is to be measured. Where oxygen concentration is confirmed to be below 19.5% or above 23% (CSA Standard Z94.4-18 (R2023)) and Saskatchewan Occupational Health & Safety Regulations, 2020, 18-8, the cause of the deficiency or enrichment shall be determined and

- a) ongoing monitoring shall be performed; and/or
- b) the atmosphere shall be assumed to be IDLH (immediately dangerous to life or health).

Refer to the CSA Standard or Regulations for additional information.

**NOTE:** None of the respirators covered in SASWH's fit testing sessions provide protection in unsafe atmospheres. Air-supplying units are not part of this training, and employees need specialized training to use air-supplying respirators.

Employees should never be allowed to enter suspect or confirmed oxygen-depleted or enriched environments. Always check with your supervisor regarding entering an unsafe atmosphere area.

**2. Airborne Contaminants** are substances released into the air that may pose a risk to health and safety. Air contaminants include:

- Biological: viruses, bacteria, moulds, etc., found in a variety of areas in the health care setting.
- Dust: particles released during procedures such as grinding and sawing.
- Mists: particulate or liquid droplets released during painting, insecticide spraying, patient care, and housekeeping.
- Vapours: gaseous forms of liquid released during painting, patient care.
- Fumes: vapourized condensed metals released during welding operations.
- Gases: gases released, usually due to leaks in a system, but can be found naturally forming (e.g., underground vaults, sewer systems, etc.). Gases can displace oxygen in an atmosphere causing oxygen deficiencies.
- Fibres: particulate matter longer than it is wide (e.g., asbestos, fibreglass)

Employers are to implement engineering, administrative and lastly personal protective equipment to control hazards and protect employees from workplace hazards. Refer to OH&S Regulations 7-1(1) at the front of this resource.

Respirators can be divided into four basic groupings:

1. respirator that delivers air from an external source (supplied-air respirator (SAR))
2. respirator that removes contaminants from ambient air (air-purifying)
3. combination respirator (a configuration incorporating both atmosphere-supplying and air-purifying); and
4. respirator designed solely for escape situations (escape-only respirator)

The focus of this training is solely on air-purifying respirators.

## Respirator Selection

### Air-purifying respirators

There are two **types** of powered air purifying respirators (PAPR):

- tight seal, which requires fit testing.
- loose hood does not require fit testing.

There are several **styles** of respirators:

- non-powered air-purifying: disposable respirators, half-face respirator (covers the nose and mouth area), full-face respirator (covers the nose, mouth, and eyes)
- powered: these types of respirators have integrated fans that move the air around inside the respirator. Typically, powered respirators are worn for a long time.

The PPE used to protect the worker from air-borne contaminants is an air-purifying respirator.

There are two types of air purifying respirators: disposable and elastomeric.

#### Disposable



- They likely have packaging marked as “single use”.
- Often made of cloth-like fibers and cannot be washed and reused.
- N95 and N100 fall in this category along with generic dust respirators that might be found in housekeeping and maintenance. (the particulate respirator ratings are explained on the next page)

#### Elastomeric



- This style is reusable and has to be cleaned and maintained in order to work properly.
- They are usually made of rubberized compounds, and individual parts can be washed.
- There are different types of cartridges, so the type of hazard group must be considered when making decisions as to what type of cartridge should be used. Cartridges must be NIOSH approved.
- The cartridges are replaceable, and logs should be kept for them.

Elastomeric respirators use two main types of protection: particulate filters and cartridges. Particulate filters block things like dust, smoke, and tiny airborne particles, while cartridges protect from harmful gases and chemical vapours. Knowing the difference helps choose the right protection for the job.

### Particulate Filters

- Remove particles from the air that is breathed through them
- Different filters are specific to the type of hazard

What they protect against:

- Solid particles (dust, metal fumes)
- Liquid aerosols (mists, biological aerosols like viruses)

Examples:

- N95, P100 filters for elastomeric respirators (often labeled as P100 or N95 filter disks)

How they work:

- Capture particles by mechanical filtration and electrostatic attraction
- Do **not** protect against gases or vapours

Physical appearance:

- Usually flat or pancake-style filters
- Can be used alone or snapped onto a gas/vapour cartridge as a combination filter



### Gas/Vapour Cartridges

What they protect against:

- Chemical gases and vapours
  - Organic vapours (solvents, paints, fuels)
  - Acid gases (chlorine, sulfur dioxide)
  - Ammonia, formaldehyde, etc.

How they work:

- Use activated carbon (or special sorbents) to adsorb gases and vapours
- Do **not** protect against particles unless paired with a particulate filter

Physical appearance:

Often larger, oval-shaped or cylindrical

- Colour-coded based on the chemical hazards they protect against (per NIOSH standards)



Respirators are rated according to the particulates they filter out of the atmosphere.

The rating indicates the percentage of a particulate filtered out of the atmosphere.

Particulate Respirator Rating:

- 95: filters out 95 percent of 0.3-micron particles in the atmosphere.
- 99: filters out 99 percent of 0.3-micron particles in the atmosphere
- 100: filters out 99.7 percent of 0.3-micron particles in the atmosphere
- N: not resistant to oil, therefore not suitable for use in atmospheres or particulate matter that may contain oil
- R: resistant to oil, therefore, can be suitable in oily atmospheres
- P: Proofed for oil, suitable for any particulate and oily atmospheres (P100 filters out 99.7 per cent of 0.3-micron particles in the atmosphere)

For example, N95: the respirator is not resistant to oil, and it filters out 95 percent of 0.3-micron particles in the atmosphere.

Before choosing the type and style of respirator, the personnel responsible would have sound knowledge of the type of hazard, the concentration and toxicity of the hazard: dust, gases, and if oil is present. They have to know the application the respirator will be used for and the limitations of the respirator.

Disposable respirators are meant for single-use applications. The change-out protocol for disposable respirators includes:

- when the respirator is wet
- when there is perceived increased resistance to breathing
- if the respirator allows breakthrough (smell or taste is recognized)
- when leaving the contaminated area

Elastomeric respirators are multi-use. The change-out protocol for elastomeric respirators includes:

- when cartridge systems have reached the workplace appointed expiry time set by competent assessors
- when there is perceived increased resistance to breathing
- when the cartridge system's estimated service life indicator (ESLI) has been reached
- when the properties of the contaminant can be detected through taste or smell it indicates a breakthrough

**Breakthrough is a poor and dangerous method of establishing respirator change-out frequency.**

End-of-service-life indicator (ESLI)

- Depending on the manufacturer's specifications, the indicator window will change colour when the filter has become saturated and needs to be replaced.



Ensure to reference the manufacturer's guidelines for protocols indicating change-out times.

As previously indicated, elastomeric respirators use particulate filters or cartridges depending on the type of environment in which they are used.

The following is the NIOSH Colour Scheme for cartridges that is used in conjunction with elastomeric respirators.

NIOSH Colour Scheme of particulate filters:

- White - acid gas (H<sup>2</sup>S escape only)
- Black - organic vapours
- Green - ammonia gas
- Yellow - mix of organic and acid
- Olive - multi-gas
- Blue - carbon monoxide
- Purple - radioactive
- Red - mercury vapour



Elastomeric respirators should be stored clean and dry, with enough space to prevent distortion, while cartridges must be kept separately in a sealed plastic bag rather than inside the respirator storage bag.

### Respirator Fit Test User Screening Form

Hazard assessments have been completed, a hazard has been recognized, equipment has been chosen, and the fit tester now performs testing.

Fit testers are responsible for completing all necessary records of fit testing. Fit testers may also be responsible for maintaining, repairing, calibrating and cleaning logs, depending on the responsibilities outlined in the employer’s program.

**Required Documentation for Fit Testing**

The respirator fit test user screening form needs to be completed by the worker before fit testing.

Completing the form requires a clear understanding of the health assessment process, including awareness of physiological and psychological conditions that may necessitate reassessment, as well as individual responsibilities. An initial evaluation of a worker's suitability to wear a respirator may be conducted by someone who is not a health care professional, provided they are working under the supervision of one. The respirator user screening form serves as a tool to help determine user suitability and to identify any health concerns that may require further medical evaluation by a qualified health care professional.

The fit tester must review this document once complete and refer the worker to a healthcare professional for further medical assessment when necessary.

A medical assessment must include a review and written determination by a qualified health care professional regarding the worker’s ability to safely use a respirator. Accurate records of this assessment must be maintained; however, personal medical details must be excluded to protect confidentiality.

SASWH has developed and offers a Respirator User Screening Form that aligns with the current CSA Standard (see Forms tab).

The image shows the top portion of the 'SASWH Respirator Fit Test Screening Form'. It includes sections for:
 

- PART 1: WORKER INFORMATION**: Name, Address, Telephone, Email.
- PART 2: EMPLOYER INFORMATION**: Employer name, Workplace address, Business phone #.
- PART 3: CONDITIONS OF USE**: Information regarding the type of respirator used (e.g., Disposable, Reusable, Powered), the work environment (e.g., Confined space, High altitude), and special work considerations (e.g., Pregnancy, Illness, Injury).
- OTHER PERSONAL PROTECTIVE EQUIPMENT (PPE)**: Information about other safety equipment used.
- PART 4: TYPES OF RESPIRATORS USED (check all that apply)**: A list of various respirator types with checkboxes.

The image shows the bottom portion of the 'SASWH Respirator Fit Test Screening Form'. It includes sections for:
 

- PART 5: WORKER'S HEALTH CONDITIONS**: A series of questions regarding the worker's health status, such as 'Have you ever had a respiratory condition?', 'Do you have any conditions that could affect your ability to safely use a respirator?', and 'Do you have any conditions that could affect your ability to safely use a respirator?'.
- PART 6: HEALTH CARE PROFESSIONAL (HCP) PRIMARY ASSESSMENT**: A section for a healthcare professional to provide a written determination on the worker's ability to safely use a respirator.
- PART 7: MEDICAL ASSESSMENT**: A section for a healthcare professional to provide a written determination on the worker's ability to safely use a respirator, including a list of medical conditions that may affect respirator use.

Saskatchewan OH&S regulations contain multiple regulations on fit testing. Refer to the front of the protocols and resources document for reference to the regulations listed below.

- Respiratory protective devices information, refer to regulation 7-3.
- Inspection of respiratory protective devices, refer to regulation 7-4.

**User Orientation & Training**

The respiratory fit testing orientation provides workers with the essential knowledge they need before undergoing a respirator fit test. It ensures they understand the respiratory hazards they may encounter, the purpose and limitations of respirators, and the proper procedures for donning, doffing, and performing user seal checks. The orientation also prepares workers by reviewing required forms, expectations for fit testing, and their responsibilities in using and maintaining respiratory protection safely and effectively. The orientation may be facilitated or self-directed.

Workers receive instruction on:

- hazards
- respirator use and limitations
- donning, doffing, seal checks
- care and storage

Ensure workers are reviewing the Respirator Fit Test Orientation before continuing.

### Donning and Doffing Respirators

The following is a poster from 3M on donning and doffing a 3M Aura 1870+ respirator. Before donning a respirator, follow the specific manufacturer's instructions for donning and doffing a respirator.

**3M Science. Applied to Life.™**

## Helping You Wear it Right

3M™ Aura™ Health Care Particulate Respirator and Surgical Mask 1870+

**Application** Always read and follow User Instructions.

**1**  Remove the respirator from its packaging and hold with straps facing upward. Place the bottom strap under the center flap next to the "ATTENTION" statement.

**2**  Fully open the top and bottom panels, bending the nosepiece around your thumb at center of the foam. Straps should separate when panels are opened. Make certain the bottom panel is unfolded and completely opened.

**3**  Place the respirator on your face so that the foam rests on your nose and the bottom panel is securely under your chin.

**4**  Pull the top strap over your head and position it high on the back of the head. Then, pull the bottom strap over your head and position it around your neck and below your ears.

**5**  Adjust for a comfortable fit by pulling the top panel toward the bridge of your nose and the bottom panel under your chin. Make certain hair, facial hair, jewelry and clothing are not between your face and the respirator as they will interfere with fit.

**6**  Place your fingertips from both hands at the top of the metal nosepiece. Using two hands, mold the nose area to the shape of your nose by pushing inward while moving your fingertips down both sides of the nosepiece. **Note:** Always use two hands when molding the nosepiece. Pinching the nosepiece with one hand may result in improper fit and less effective respirator performance.

**7**  **Perform a User Seal Check**  
**Check the seal of your respirator each time you use the respirator.**  
Place one or both hands completely over the middle panel. Inhale and exhale sharply. Be careful not to disturb the position of the respirator. If air leaks around your nose, re-adjust the nosepiece as described in Step 6. If air leaks around respirator edges, adjust panels and position of straps and make certain respirator edges fit snugly against the face. If you cannot achieve a proper seal, do not enter the contaminated area. See your supervisor.

**Removal** Can be performed using one or both hands

**1**  **One hand**  **Two hand**  
Without touching the respirator facepiece, slowly lift the bottom strap from around your neck up over your head.

**2**  **One hand**  **Two hand**  
Lift off the top strap. Do not touch the respirator.

**3**   
Store or discard according to your facility's infection control policy.

**WARNING:** This respirator is not to be used in conjunction with any other respiratory protection. Do not use this respirator with any other respiratory protection provided as a part of the product package. Federal and state agencies in the U.S. require respirator use to be accompanied by a respiratory fit test program. Do not use this respirator for any use not intended or approved by the manufacturer. Check expiration or discard date and use only if the expiration or discard date has not passed. Always use proper donning and doffing procedures. For more information, visit [www.3m.com/aura1870](http://www.3m.com/aura1870). © 2015 3M. All rights reserved.

3M Health Care  
Medical Division (R0401)  
3302 Conway Avenue  
St. Paul, MN 55134-0001  
U.S.A.  
1-800-424-3887  
3M.com/Medical

3M and Aura are trademarks of 3M.  
© 2015 3M. All rights reserved.  
Please recycle. 3M F44110 U.S.A.  
© 2015 3M. All rights reserved.  
30-2010-0153-0

3M has permitted SASWH to use this resource.

Once the respirator has been properly donned, the worker must complete a negative and positive user seal check.

### Negative and Positive User Seal Checks

Several styles of respirators should be available for the test procedure. Workers will be given time to select a respirator that gives them a good positive and negative user seal check prior to the test. Each time a respirator is donned, workers must perform a “Negative/Positive user seal check” before entering the hazard area.

### Negative and Positive Pressure User Seal Checks for Disposable Respirators

The following procedures are provided as examples once the respirator is properly donned.

During a **negative pressure user seal check**, the respirator user **inhales** sharply while blocking the paths for air to enter the facepiece. A successful check is when the facepiece collapses slightly under the negative pressure that is created with this procedure.

To conduct a negative pressure user seal check, the respirator user covers the filter surface with their hands as much as possible and then **inhales**. The facepiece should collapse on the user's face, and they should not feel air passing between their face and the respirator. Different types of respirators may show varying degrees of collapse due to respirator composition.

During a **positive pressure user seal check**, the respirator user **exhales** gently while blocking the paths for air to exit the respirator. A successful check is when the respirator is slightly pressurized before increased pressure causes outward leakage.

To conduct a positive pressure user seal check, the respirator user **exhales** gently into the respirator. The fit is considered satisfactory if a slight positive pressure is being built up inside the respirator without any evidence of outward leakage of air at the seal. Examples of such evidence would be the feeling of air movement on their face along the seal of the respirator, fogging of their glasses, or a lack of pressure being built up inside the respirator.

In either seal check, if air leaks around the nose, the respirator user uses both hands to readjust the nosepiece by placing fingertips at the top of the metal nose clip. Slide fingertips down both sides of the metal strip to more efficiently mould the nose area to the shape of the user's nose. Readjust the straps along the sides of the head until a proper seal is achieved. Repeat the seal checks.

Not every respirator can be checked using both positive and negative pressure. Refer to the manufacturer's instructions for conducting user seal checks on any specific respirator. This information can be found on the box or individual respirator packaging.

If users cannot achieve a proper seal due to air leakage, they may need to be fit tested for a different respirator model or size.

Note: Explain the negative and positive user seal checks. Demonstrate and have participants practice and receive a return demonstration of understanding. If there are not any elastomeric respirators available for the testers to practice with, only demonstrate the procedure.

**Fit Test Preparation**

Fit test preparation ensures that both the worker and the equipment are ready for an accurate and reliable fit test. This step confirms that all required conditions are met, including proper grooming, the absence of interfering accessories, and correct respirator selection. The fit test can then be performed safely and effectively. Proper preparation helps ensure consistent results and supports the overall success of the respiratory protection program.

This excerpt is from the Respirator Fit Test Documentation form that must be reviewed with the worker.

Orientation completed	<input type="checkbox"/> Yes	<input type="checkbox"/> No - reschedule fit testing accordingly	
Respirator user screening form completed	<input type="checkbox"/> Yes	<input type="checkbox"/> No - reschedule fit testing accordingly	
Has had <b>no</b> food/drink (except plain water), <b>has not</b> smoked/chewed gum for <b>at least 15 minutes</b> prior	<input type="checkbox"/> Yes	<input type="checkbox"/> No - reschedule fit testing accordingly	
Clean shaven/no respirator interference	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Applicable
Eye glasses	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Applicable
Contact lenses	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Applicable
Dentures	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Applicable
Hair style (e.g., hair buns)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Applicable
PPE worn by worker (indicate):	<input type="checkbox"/> goggles <input type="checkbox"/> face shield <input type="checkbox"/> bonnet <input type="checkbox"/> other:		
Cautions/limitations reviewed for awareness	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

**Factors that can compromise the face-to-respirator seal**

**Facial hair:** Individuals must be clean-shaven wherever the respirator seals to the face or neck. Because hair growth varies, most people should shave within the past 24 hours, preferably within 12, to ensure no hair interferes with the respirator seal, valves, or function. Refer to the Facial Hairstyles and Filtering Facepiece Respirators document in the Forms tab.

**Personal conditions:** Individuals must appear for fit testing in the same condition they will be in when using the respirator, including hairstyle and use of dentures, eyeglasses, or contact lenses.

**Personal effects or accessories:** Individuals must appear for fit testing without any accessories—such as head coverings, garments, or facial jewelry—that could come between the skin and the respirator’s sealing surface.

**Note:** These factors, as well as makeup, creams, or lotions, can interfere with proper sealing, valve function, and respirator positioning. The above information is paraphrased from the CSA Standards 9.2.2, 9.2.3, and 9.2.4.

SASWH has developed and offers a Respirator Fit Test Documentation form that aligns with the CSA Standard. See the Forms tab.

**SASWH** Saskatchewan Association for Occupational Health and Safety  
**Respirator Fit Test Documentation**

**For SASWH Approved Fit Tester Use**  
 SASWH's approved fit tester completes this form at the fit testing session; this completed document will be provided to the employer for their due diligence/record of records.

Worker Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Pre-Fit testing**  
 Worker present (formalised in the same personal condition they would expect to be in when using the respirator at work, including any personal protective equipment (PPE))

**Respirator information (testing record, manufacturer and model)**

Respirator user exceeding form completed	<input type="checkbox"/> Yes <input type="checkbox"/> No	Respirator fit testing, accuracy	<input type="checkbox"/> Yes <input type="checkbox"/> No
Can not see forehead covered area when face seal	<input type="checkbox"/> Yes <input type="checkbox"/> No	Respirator fit testing, accuracy	<input type="checkbox"/> Yes <input type="checkbox"/> No
Unsanitized hands for at least 15 minutes prior	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable		
Clear obstructive respirator interference	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable		
Eyeglasses	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable		
Contact lenses	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable		
Dentures	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable		
Clear ways to the face (hairs)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable		
PPE worn by worker (includes)	<input type="checkbox"/> Goggles <input type="checkbox"/> Helmets <input type="checkbox"/> Scarves <input type="checkbox"/> Other		

Comfort/interference response for respirator:  1  2  3

Complete the assessment exercises on page 2 for applicable test (qualitative or quantitative):  
 Check if Quantitative Respirator Fit Test  
 Check if Qualitative Respirator Fit Test and indicate agent used and loads:

Agent used: \_\_\_\_\_ Initial load: \_\_\_\_\_ To load: \_\_\_\_\_

Alerts worker that wearing a respirator with A9 test head will receive further advice/information on agent levels, and this can cause discomfort. If this occurs, the worker notifies you to interrupt the test and remove the head and respirator.

**Respirator Information/Testing** (record manufacturer and model)

Manufacturer	Model/Type	Respirator Pass (Y/N/A/P)

**Important:** Respirators are NOT to be turned or modified (e.g., no bending, stretching, creating straps, adjusting straps or straps) to achieve successful fit. If unable to successfully fit with respirator available, the worker is advised to contact their management/supervisor for a productive alternative (e.g., fit testing with other approved respirator as per employer's current Work Standard).

**Notes:**

**General Caution/Instructions for NIOSH Disposable Respirators**  
 Always refer to manufacturers package insert for specific information

- Not to use in atmosphere containing less than 19.5% oxygen or in atmosphere immediately adjacent to the worker. Do not exceed maximum use concentration established by regulatory standards. Failure to properly use and maintain the product could result in injury or death.
- All approved respirators shall be selected, fitted, used, and maintained in accordance with applicable regulatory, manufacturer, specific, and/or standards. Use only wear replacement parts in the configuration as specified by the manufacturer.
- Refer to user's instructions/instructions for information on maintenance of respirators. NIOSH does not endorse respirators for use as single tasks.

SASWH's approved fit tester follows the current CAN/CSA Standard Z34.4-18.

May 1, 2020 (rev Nov 13/20) Page 1 of 2

**SASWH** Saskatchewan Association for Occupational Health and Safety  
**Respirator Fit Test Documentation**

The following is intended as a reference only; refer to the CSA Standards for full details  
Note: "1" denotes "fit for purposes," "2" denotes "fit for purposes"

**Comfort Assessment Conditions and Criteria (B2.3.3 and C2.3.3)** To check the comfort and appropriateness of fit, a comfort assessment is completed. The assessment includes:

- proper placement on the nose
- ensuring proper visibility
- straps are not too tight or loose
- applicable PPE doesn't interfere
- can speak without breaking the seal

**Comfort assessment movements:** During the comfort assessment process described in Clause B.2.3.3 or C.2.3.3, and after the initial testing period, the wearer should carry out the following movements for 3-5 seconds each:

- 1. Clearly touch the head up and down
- 2. Lean the head to the left ear towards
- 3. Turn the head left to right
- 4. Crank the head vigorously back
- 5. Make various facial movements: open and close the mouth as if talking; move the jaw side to side and up and down, smile, and

**Comfort assessment scoring (B.2.3.5 and C.2.3.5)** Wearer asked to score the facepiece according to the following criteria:

- 1 - No issues or discomfort
- 2 - Noticeable discomfort, but still able to perform tasks (may interrupt/stop working or use alternative respirator)
- 3 - Severe discomfort, intolerable or unmanageable (prevents alternative respirator or action)

**Acceptable comfort validation question (B.2.3.8 and C.2.3.8)** Once the fit test has been successfully completed, the wearer's comfort with the respirator must be assessed by asking:

"Does this respirator give you a level of comfort that you consider acceptable for the work you will be performing?"

- Yes  No

If the answer is "No," another suitable protective option must be provided as part of the respiratory protection program.

**GLT exercises performed (B.2.5.2)** To check the fit of the respirator. Each exercise is at least 30 seconds:

- 1. normal breathing
- 2. deep breathing (slow and regular)
- 3. turn head side (inhalate) to side (exhale)
- 4. nodding head up (inhalate) and down (exhale)
- 5. talking (loud enough to be understood/heard by location of exercise)
- 6. bending over (space permitting) at the waist to keep head and back parallel to the floor, repeat at a comfortable pace/pace long enough to inhale twice at each extreme position
- 7. and then normal breathing again

Respirator Fit Tester Name: \_\_\_\_\_ Respirator Fit Tester Signature: \_\_\_\_\_

Completed by the Worker: I understand this document will be provided to my employer for their records/records.

Worker Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Nov 2020 (rev Nov 13/20) Page 2 of 2

After the pre-fit testing documentation has been completed and approved, the worker is cleared for fit testing. The fit tester selects a respirator appropriate for the hazard, as well as the correct size and shape for the worker. Once the worker has a respirator, they must inspect it, don the respirator, and perform a positive and negative user seal check.

To check the comfort and appropriateness of fit, a comfort assessment is completed. The assessment includes proper placement on the chin and nose, ensuring proper visibility, straps are not too tight or loose, applicable PPE doesn't interfere, and they can speak without breaking the seal. Workers must include any PPE required for fit testing for the identified hazardous area.

To help ensure comfort and proper fit of the respirator, perform the following instructions:

**Comfort assessment movements:**

- a) gently nod the head up and down
- b) tilt the head so the left ear moves toward the left shoulder, then repeat on the right side
- c) rotate the head from one side to the other
- d) shake the head side to side twice in a quick, vigorous motion
  
- e) perform a range of facial movements: open and close the mouth as if speaking, move the jaw side to side and up and down, smile, and frown

The worker shall be asked to score the facepiece according to the following criteria.

**Comfort assessment scoring:**

- 0 – No issues or discomfort
- 1 – Minor discomfort, easily ignored
- 2 – Noticeable discomfort, but still able to perform tasks
- 3 – Severe discomfort, intolerable or unmanageable

A score of 2 should prompt the fit tester to initiate re-donning, adjust the respirator's positioning, or consider an alternative respirator model.

A score of 3 indicates unacceptable discomfort and requires immediate rejection of the respirator in use. If a suitable respirator cannot be identified for the specific application, an alternative form of respiratory protection must be provided in accordance with the respiratory protection program. It is important to note that a small percentage of individuals may be unable to use any tight-fitting respirator.

Redonning or repositioning a respirator doesn't mean it's a fit test failure. If it's required to use an alternative respirator, this means the first one is excluded. There is to be no force-fitting of a respirator.

**Types of Fit Testing**

Having completed the comfort-assessment scoring, the next step is to evaluate the respirator's fit using recognized fit-testing methods. Fit testing can be performed using either a qualitative fit test (QLFT) or a quantitative fit test (QNFT). QLFT methods rely on the worker's sensory detection of a test agent to determine whether a suitable seal is achieved, while QNFT methods use instrumentation to measure and calculate the actual fit factor. The following sections outline the requirements and procedures for each type of test.

**QLFT**

- Uses a detectable test product to determine fit, such as Bitrex or Saccharin
- Affordable fit test method.
- Higher risk of error.

**QNFT**

- Measures accurate particulate counts inside and outside of the respirator to determine the numerical fit factor.
- Fit test machines are very costly and must be calibrated annually by an approved certified technician.

## QLFT

**QLFT is suitable for** N95 respirators or half-mask respirators.

This type of test relies on the user's sensory reaction to a test agent, which may be Saccharin or Bitrex, to determine a proper fit. Qualitative testing is not recommended for full-face respirators or where high-hazard situations may require more precise protection.

### Prior to qualitative respirator fit tests:

- Prepare all equipment (refer to manufacturer's instructions): hood, collar, solutions, gloves, hand sanitizer, pens, forms, drinking water, etc.
- User screening form or employer's equivalent has been completed and reviewed by the fit tester.
- All workers being fit tested will have the complete testing procedure explained to them before being tested.
- Worker is clean-shaven as per NIOSH and CSA Standard.
- Incorporate proper hand hygiene.
- Select the respirator to be used and follow the manufacturer's donning and doffing procedure. **Ensure that the user can demonstrate competency in the process.**
- Proceed with the threshold screening, using either bitter or sweet sensitivity solutions; this is ideally completed in a separate room from the actual fit test, if space and equipment are available to do so.
- Fit testing for qualitative should be done in a well-ventilated room.
- Respirator fit test documentation or an employer's equivalent is started and completed as testing proceeds.
- Proceed to fit test. Follow the manufacturer's instructions in the qualitative kit that is provided by the employer. As an example, a copy of the 3M's Quick Reference Guide is found in the forms tab.
- Before removing the hood following a satisfactory fit test, the fit tester conductor shall ask the test subject to break the face-to-respirator seal. Having the worker detect the test agent confirms the validity of the fit test and the effectiveness of the respirator.
- The acceptable comfort validation question is asked.
- More instruction is available in the CAN/CSA-Z94.4-18, Annex B (normative) qualitative fit testing.



**QLFT Protocols:** The screening and testing process must be fully explained to the test subject before the screening begins. The fit test shall be performed in a well-ventilated space or in a separate room immediately following the threshold screening.

**Note:** Fit testers should inform users that wearing a respirator with a fit test hood may increase inhaled carbon dioxide levels and reduce oxygen levels, which can cause discomfort. If discomfort occurs, the user must notify the fit tester so the test can be paused and the hood and respirator removed.

### Bitrex (Denatonium Benzoate) Taste Threshold Screening

The bitter aerosol taste threshold screening is conducted **without a respirator** to confirm whether the test subject can detect the taste of a bitter aerosol before fit testing.

### Screening procedure:

a) The test subject must not eat, drink anything other than plain water, smoke, or chew gum for at least 15 minutes prior to the screening.

- b) The same test enclosure specified in the applicable CSA Standard shall be used for the screening.
- c) The enclosure must include a 19 mm ( $\frac{3}{4}$  in) opening positioned in front of the subject's nose and mouth to allow insertion of the nebulizer or atomizer nozzle.
- d) The test subject shall wear the enclosure and, throughout the screening, breathe through a slightly open mouth with the tongue extended. The subject must indicate when a bitter taste is detected.
- e) The threshold screening solution shall be prepared by dissolving 13.5 mg (0.0005 oz) of Bitrex in 100 mL (3.5 fl oz) of a 5% sodium chloride (NaCl) solution made with distilled water. A commercially prepared screening solution may also be used.
- f) Approximately 3 mL (0.01 fl oz) of the screening solution shall be placed into a nebulizer that is clearly labeled and kept separate from the nebulizer used for fit testing.
- g) The test conductor shall introduce the threshold screening solution into the enclosure using the nebulizer.
- h) Aerosol generation is achieved by firmly squeezing the nebulizer bulb until fully collapsed, then releasing it and allowing it to fully expand.
- i) Ten rapid squeezes shall be administered initially. The subject shall then be asked whether the bitter taste is detected. If the taste is reported at this stage, the screening is complete and the taste threshold is recorded as **10 squeezes**, regardless of the actual number completed.
- j) If no taste is reported, a second set of **ten rapid squeezes** shall be performed. If the subject detects the bitter taste during this stage, the screening ends and the threshold is recorded as **20 squeezes**.
- k) If the taste is still not detected, a third set of **ten rapid squeezes** shall be completed. If the taste is reported during this stage, the screening is complete, and the threshold is recorded as **30 squeezes**.
- l) The test conductor shall document the number of squeezes required to produce a taste response.
- m) If the subject does not detect the bitter aerosol after **30 squeezes**, the individual is considered unable to taste the bitter aerosol, and this fit test method shall not be used.
- n) When a taste response is obtained, the subject shall be instructed to remember the taste sensation for comparison during the fit test.
- o) Proper nebulizer operation uses approximately 1 mL (0.035 fl oz) of solution per application.
- p) The nebulizer shall be thoroughly rinsed with water, shaken dry, and refilled at least twice daily or every 4 hours, whichever occurs first.

### Bitrex (Denatonium Benzoate) QLFT Protocol

The following steps outline the procedure for conducting a bitter aerosol qualitative fit test:

- a) The test subject must refrain from eating, drinking anything other than plain water, smoking, or chewing gum for at least 15 minutes before the fit test begins.
- b) The fit test shall be conducted using the same enclosure specified in the applicable CSA Standard.
- c) The test subject shall put on the enclosure while wearing the selected respirator. The respirator must be correctly positioned, properly adjusted, and fitted with a particulate filter.
- d) A separate nebulizer or atomizer shall be used to administer the fit test solution. This nebulizer must be clearly labelled and kept distinct from the nebulizer used for taste threshold screening.
- e) The fit test solution shall be prepared by dissolving 337.5 mg (0.0125 oz) of Bitrex in 200 mL (7.0 fl oz) of a 5% sodium chloride (NaCl) solution made with warm water. A commercially prepared fit test solution may be used as an alternative.
- f) Approximately 3 mL (0.01 fl oz) of the fit test solution shall be placed into the designated nebulizer.

- g) During the test, the subject shall breathe through a slightly open mouth with the tongue extended and must report immediately if a bitter taste is detected.
- h) The nebulizer shall be inserted into the opening at the front of the enclosure, and the initial concentration of the fit test solution shall be introduced using the **same number of squeezes** (10, 20, or 30) that were required to produce a taste response during the threshold screening.
- i) Once the aerosol has been generated, the subject shall perform the prescribed fit test exercises as outlined in the applicable standard.
- j) At **30-second intervals**, the aerosol concentration shall be maintained by administering **half** of the original number of squeezes used (i.e., 5, 10, or 15 squeezes).
- k) The test subject shall notify the test conductor immediately if the bitter taste is detected at any point during the fit test. If no taste is reported, the fit test is considered passed.
- l) If the subject detects the bitter aerosol, the respirator fit is deemed unsatisfactory, and the test is considered failed. A different respirator must be selected, and the entire process—including taste threshold screening and fit testing—shall be repeated.
- m) Following a successful fit test and before removing the enclosure, the test conductor shall instruct the subject to intentionally break the face-to-facepiece seal. Detection of the test agent at this stage confirms the validity of the test and the effectiveness of the respirator seal.

### Saccharin Taste Threshold Screening

The saccharin taste threshold screening follows the same procedure as the bitter aerosol (Bitrex) taste threshold screening, except for the preparation of the test solution, steps e and f. This screening is conducted without a respirator to confirm the test subject's ability to detect the saccharin aerosol.

- e) The threshold screening solution shall be prepared by dissolving 0.83 g (0.029 oz) of USP-grade sodium saccharin in 100 mL (3.5 fl oz) of warm water. Alternatively, 1 mL of the saccharin fit test solution may be diluted in 100 mL (3.5 fl oz) of distilled water. A commercially prepared screening solution may also be used.
- f) Approximately 3 mL (0.01 fl oz) of the taste screening solution shall be placed into a nebulizer. This nebulizer must be clearly labelled and kept separate from the nebulizer used for the fit test solution.

### Saccharin QLFT

The saccharin fit test follows the same procedure as the bitter aerosol (Bitrex) fit test, with the primary difference being the preparation of the test solution, steps d, e, and f. This test is conducted with the respirator in place to verify the fit by detecting the sweet taste of saccharin.

- d) The fit test solution shall be prepared by dissolving 0.83 g (0.029 oz) of USP-grade sodium saccharin in 100 mL (3.5 fl oz) of warm water. Alternatively, a commercially prepared fit test solution may be used.
- e) Approximately 3 mL (0.01 fl oz) of the fit test solution shall be placed into a nebulizer.
- f) The test subject shall breathe through a slightly open mouth with the tongue extended and report immediately if the sweet taste of saccharin is detected.

**QNFT****QNFT is suitable for:**

- Disposable respirators
- Half-mask fit testing
- Full-face fit testing
- Self-Contained Breathing Apparatus (SCBA), gas mask, and PAPR fit testing – SASWH does not perform fit testing on these respirators

**Prior to Quantitative respirator fit tests:**

- Prepare AccuFit or PortaCount according to the manufacturer's instructions and guidelines. Ensure all necessary materials are available, including forms, pens, respirators, and hand sanitizer.
- User screening form or employer's equivalent has been completed and reviewed.
- All workers being fit tested will have the complete testing procedure explained to them prior to being tested.
- Worker is clean-shaven as per NIOSH and CSA Standards
- Incorporate proper hand hygiene.
- Select the respirator to be used and follow the manufacturer's donning and doffing procedure. Ensure that the user can demonstrate competency in the process.
- Respirator fit test documentation or the employer's equivalent is started and completed as testing proceeds.
- Demonstrate and have participants practice and receive a return demonstration of understanding.
- The acceptable comfort validation question is asked.
- More instruction is available in the CAN/CSA-Z94.4-18(2023), Annex C, quantitative fit testing.

**QNFT Equipment**

The employer must ensure that QNFT equipment is properly maintained, calibrated, and operated according to the manufacturer's instructions.

**QNFT Protocols**

The fit tester conducting the QNFT shall provide the test subject with an introduction to the procedure. This introduction shall include the following points:

- a) Explain the purpose and procedure of QNFT, why it is required, and the importance of achieving a consistent, effective face-to-facepiece seal.
- b) Explain the significance of the test to encourage full cooperation from the test subject.
- c) Describe the challenge agent used during the test (e.g., ambient dust, generated aerosol, or negative pressure).
- d) Explain how the test subject selects a properly fitting and comfortable respirator suitable for the task.
- e) Confirm that the respirator is fitted with the appropriate adapters or filters for the QNFT being conducted.
- f) Explain that the test subject must successfully complete a positive- or negative-pressure user seal check without physical or verbal assistance before the QNFT begins.
- g) Explain that the test subject must don the respirator correctly according to the manufacturer's instructions, without assistance.
- h) Explain that during QNFT, the subject must wear any other PPE required in the workplace that could affect the face-to-facepiece seal.
- i) Describe the QNFT exercises and demonstrate how to perform them.
- j) Explain why it is important to use, in the workplace, the same brand, model, and size of

facepiece that was used to pass the QNFT.

k) Emphasize that the user must inspect the respirator before each use to ensure it is in proper working condition.

**Comfort Validation**

Once the fit test has been successfully completed, the worker's comfort with the respirator must be reassessed by asking:

"Does this respirator give you a level of comfort that you consider acceptable for the work you will be performing?" Yes or No.

If the answer is "No," another suitable protective option must be provided as part of the respiratory protection program.

**Fit Test Documentation**

- User screening form
- Documentation Form (manufacturer, model, size, pass/fail, method)
- Tester's notes (comfort score, issues encountered)
- Required signatures on forms completed.

If there is a change in the respiratory hazard, the fit testing process needs to be repeated and documented.

**Respirator Issuance and Practical Use**

- Provide the documentation to the worker on the respirator that fits.
- Ensure the worker understands the cautions and limitations of the respirator fitted to them. This can be found on the packaging or on the instruction sheet from the manufacturer.
- Remind the worker they must perform a seal check before each use.

**Cleaning, Inspection, Maintenance, and Storage of Respirators.**

- Each manufacturer has developed their own protocols for the inspection, storage, cleaning and maintenance of their respiratory protective devices.
- Refer to the Respirator Fit Test Orientation.
- Please refer to your manufacturer's recommendations.

**Recording**

Maintain records of hazard assessments and respirator selection, documenting the initial and ongoing need for respirators. Update and record respirator selection whenever hazards change and retain all records as required by policy.

**Overview of Orientation and Forms:**

Orientation (facilitated or self-directed) before fit testing

- facilitated orientation: use PowerPoint and refer to the paper copy for additional content if necessary;
- self-directed: respirator users are provided with and read a paper copy

The respirator user screening form must be completed before fit testing

- aligns directly with the CSA Standard
- fit testers review to ensure the worker meets the requirements for fit testing
- employer retains documentation for due diligence

### Documentation form

- record of fit testing performed; provides a checklist for the fit tester to use during QLFT and QNFT that aligns with the CSA Standard
- retained by the employer for due diligence, see OH&S Regulation 7-3 (5)

### Participant (attendance) list (if used)

- optional document; could also be retained by the fit tester for their records

### QLFT Quick Reference Sheet

## Summary

### What you have learned:

- Administration & Roles: Define responsibilities; ensure fit testers are trained and competent.
- Hazard Assessment: Identify airborne hazards and determine required controls.
- Respirator Selection: Choose appropriate respirator types, models, and sizes.
- Medical/User Screening: Complete screening and refer to healthcare professionals as needed.
- Worker Training: Provide instruction on hazards, respirator use, seal checks, care, and storage.
- Pre-Test Steps: Verify clean-shaven status, remove interfering items, perform seal checks, and complete comfort assessment.
- Fit Testing: Conduct QLFT or QNFT following required procedures; document results.
- Documentation: Maintain screening forms, fit-test records, and tester notes.
- Issuance & Use: Provide fitted respirator; workers perform seal checks before each use.
- Maintenance & Storage: Follow proper cleaning, storage, and filter/cartridge replacement schedules.
- Program Review: Re-test annually and evaluate program performance; maintain tester competency.
- Recordkeeping: Keep all required documents per OH&S regulations.