Public Services Health & Safety Association™

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Train the Fit Tester for Respiratory Protection

Distance Learning

Participant Workbook

Train the Fit Tester for Respiratory Protection Distance Learning

Product Code: IREPWAEN0420

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Introduction

Welcome to PSHSA's course on Respiratory Fit Testing.

With the emergence of novel infectious respiratory diseases such as SARS (severe acute respiratory syndrome) and H1N1 in the past; and with the prospect of pandemic influenza raising a concern for the future, organizations have had to make the development and implementation of respiratory protection programs a priority.

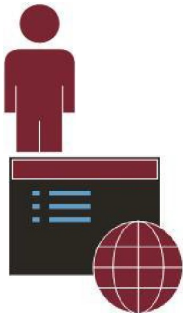
Respiratory protection programs are not new to workplaces. Exposure to air contaminated by chemical and biological agents is an occupational hazard. Therefore, respiratory protection, along with other control strategies, is necessary. For example, in 1985, the incidence of tuberculosis started to increase, reversing a 30-year downward trend. Exposure to tuberculosis became an increasing hazard to health and community care workers. Employers had to put control strategies in place to protect clients and employees. These control strategies included the use of respirators and the development of respiratory protection programs.

For many organizations, respiratory protection programs for both chemical and infectious agents have been informal or non-existent. However, the emergence of a new infectious disease, the potential re-emergence of past diseases, and the ongoing potential for other respiratory hazards have createdconsiderable focus on the need for formal respiratory protection programs. Organizations must be vigilant to ensure they develop, implement and maintain an effective respiratory protection program.

This course was developed to address the need to have effective respiratory protection in the workplace. It focuses on understanding the requirements of respiratory protection programs and how to conduct fit testing.

Icons Used in this Training

In this Participant Workbook, you will see several icons. The table on this page presents the icons and explains what these icons mean and how they are used.

Icon	What it Means	Icon	What it Means
	New Section		Individual Reflection - Taking it Back to Work Exercise
	Group Exercise		Website References

Welcome

This Participant Workbook was developed to provide you with some useful information about respiratory protection programs and respiratory fit testing. Your instructor will reference specific pages in this workbook during the course. You can also keep this workbook as a reference.

Goal

The goal of this course is to provide you with the knowledge, skills and steps to follow to properly select respirators and fit test wearer to ensure that they are effectively protected from aerosol and bioaerosol hazards in the workplace.

Learning Objectives

After completing this course, you will be able to:

- Explain why respiratory protection programs and fit testing are important
- Explain the implications of the routes of transmission of bioaerosols
- Outline the main legislative requirements and standards related to infectious diseases and respiratory protection programs
- Explain how respiratory protection fits into the context of RACE
- Describe types of particulate respirators and their selection, use, care and limitations
- Describe the required elements of an effective respiratory protection program
- Perform qualitative fit testing (QLFT)

Participant Introduction Activity

Introduce yourself to the group. State the following:

- Your name
- Job title
- Organization you work for
- What you hope to gain from this training program

Definitions of Key Terms

Term	Definition
Aerosol	Fine solid or liquid particulate suspended in a gas medium (e.g., air). Aerosols are capable of causing infection or adverse or allergic response.
Aerosol-Generating Procedure	A procedure that stimulates coughing and promote the generation of aerosols. Examples of AGPs include: • Intubation & related procedures, e.g. manual ventilation • Respiratory and airway suctioning (including tracheostomy care and open suctioning with invasive ventilation) • Cardiopulmonary resuscitation • Bronchoscopy • Collection of lower respiratory tract specimens (e.g. bronchial and tracheal aspirates) • Autopsy procedures
Bioaerosol	(See Aerosol definition) -- Bioaerosols range in size from submicroscopic particles (<0.01 um) to particles greater than 100 um in diameter
Airborne Transmission	Spread of disease by particles that are less than five (5) microns in diameter and can remain suspended in the air for long periods of time.
Colonization	A carrier (colonized individual) is a person in whom organisms are present & may be multiplying, but who shows no clinical response to their presence. The carrier state may be *permanent*, with the organism always present; *intermittent*, with the organism present for various periods; or *temporary*, with carriage for only a brief period.
Droplet Nuclei	The residue from the evaporation of fluid from respiratory droplets. Droplet nuclei may remain suspended in air for some time and can be moved to remote areas by air currents or ventilation systems. Droplet nuclei are usually <5 microns in diameter and may contain the infectious agent.

Term	Definition
Droplet Transmission	Spread of disease by particles that are greater than five microns in diameter. Large droplets generally travel less than two metres in the air. Droplets can also "dry out", become smaller and travel further (i.e. droplet nuclei). Humidity and air currents have an effect on this.
Fungal Spores	Reproductive body produced by some moulds and fungi, ranging in size from 2.5 to 3.5 microns.
Infection	The replication of organisms in the tissue of a host. When defined in terms of infection, disease is overt clinical manifestation. The spectrum of occurrence of disease in a defined population includes *sporadic* (occasional occurrence); *endemic* (regular, continuing occurrence); *epidemic* (significantly increase occurrence); & *pandemic* (epidemic occurrence in multiple countries).
Micron	A millionth of a metre – represented by the symbol μ (also known as a Micrometre)
Risk Groups	In laboratories, where they handle & use biological agents, Health Canada Laboratory Biosafety Guidelines require that applicable organizations make use of a 4 level Risk Group (RG) classifications system. In the context of a *comprehensive risk assessment*, labs are able to select appropriate containment (Levels 1 to 4) by applying the risk group classification system. Additionally, other specific types of preventative & control measures may be recommended to adequately control the risk. In the lab, this system works well because it is an environment that is highly controlled & does not have to deal with the added complexity of patient care.

Why are Respiratory Protection Programs Important?

*"We may be on the verge of a new devastating pandemic. Organizations **must be vigilant** to ensure that they develop, implement & maintain an effective respiratory protection program."*

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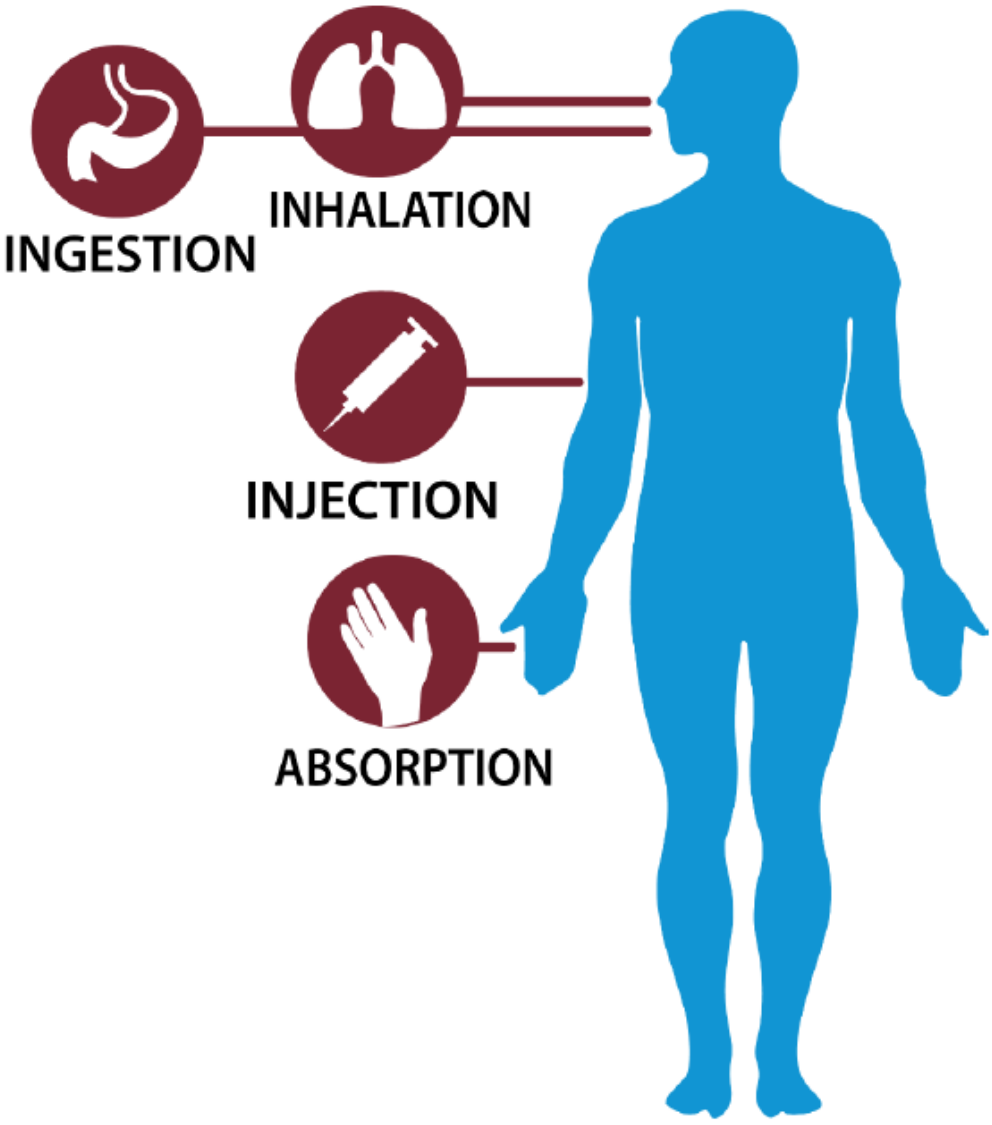
Routes of Transmission of Bioaerosols

There are four (4) main ***routes of entry:***

- Inhalation
- Ingestion
- Injection
- Absorption

For the purposes of this course, we are focusing on the prevention of **inhalation** of occupationally acquired respiratory hazards such as aerosols & bioaerosols.



Biological Hazards (Infectious Agents)

The main groups of infectious/biological agents or pathogens are:

- Bacteria
- Viruses
- Mould/Fungi
- Parasites

Bioaerosols may be found in:

- respiratory secretions of infected people
- aerosolized during coughing
- other aerosol-generating procedures (e.g., intubation, bronchoscopy)

Notes:

Participant Activity

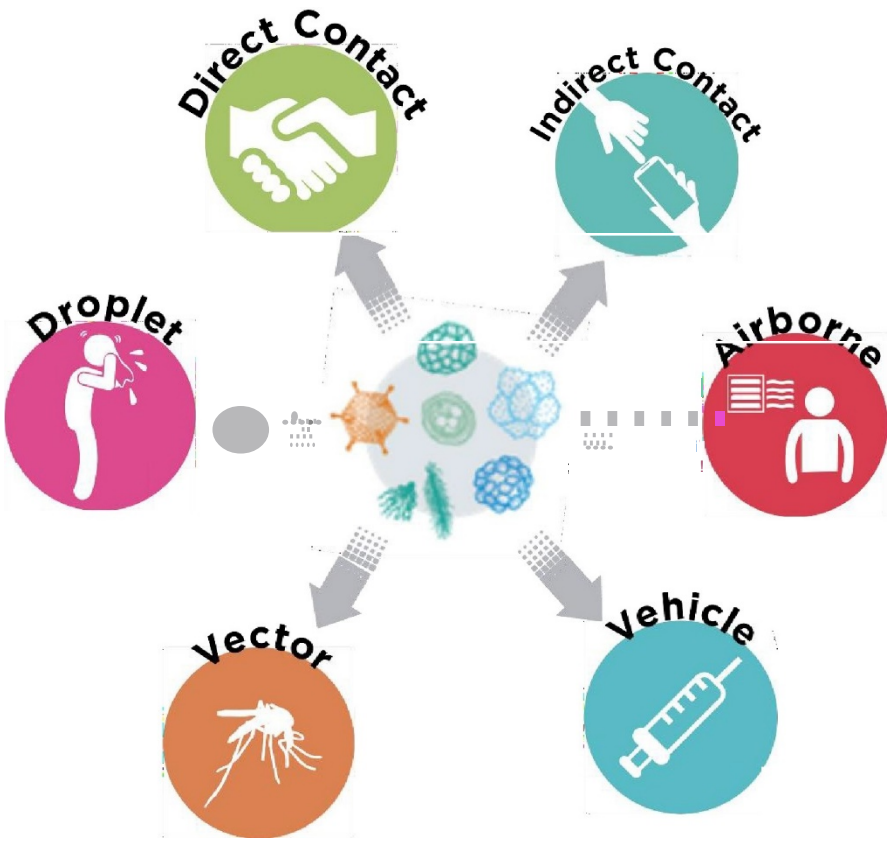
What bioaerosol hazards are there in your sector?

Notes:

Modes of Transmission

There are six (6) main routes of transmission related to infectious agents:

- **Direct contact:**
  Occurs when micro-organisms are transferred from an infected individual to a host during direct physical contact (body surface to body surface)
- **Indirect contact:**
  Occurs when microorganisms are transferred from an infected individual to a host via an intermediate contact such as instruments, surfaces, equipment or personal belongings



- **Droplet transmission:**
  Spread of disease by particles that are greater than five microns in diameter. Large droplets generally travel less than two metres in the air. Droplets can also "dry out", become smaller and travel further (i.e. droplet nuclei). Humidity and air currents have an effect on this.
- **Airborne transmission:**
  Spread of disease by particles that are less than five microns in diameter and can remain suspended in the air for long periods.
- **Vehicle transmission:**
  Spread when contaminated food, medication, animals, etc. transmit infection to multiple hosts.
- **Vector transmission:**
  Occurs when an insect (i.e. mosquito or tick) transmits infection to a susceptible host.

Exercise: Examples of Infectious Agents or Diseases

- Working in your table groups, come up with 1 to 2 examples of infectious agents ordiseases due to each of the items listed on this page.
- Be prepared to share your examples with the class.

Droplet transmission: _____

_____

_____

Airborne transmission: _____

_____

_____

Droplet nuclei: _____

_____

_____

Fungal spores: _____

_____

_____

Direct contact: _____

_____

_____

Indirect contact: _____

_____

_____

Did you know?

During a sneeze, millions of tiny droplets of water & mucus are expelled at about 200 miles per hour (100 metres per second). The droplets initially are about 10-100 micrometres diameter, but they dry rapidly to droplet nuclei of 1-4 micrometres, potentially containing virus particles or bacteria. This is a major means of transmission of several diseases of humans.

Cough into your elbow & wash your hands frequently!

Significant Infectious Diseases

Influenza

Infectious respiratory disease caused by influenza virus.
Most often spread by droplet route, can be spread by contact route.
Unclear how much importance airborne route is in transmission, however certain procedures may produce airborne transmission.
Vaccine is most important means of protecting health care workers.
Pandemic influenza controls may differ from controls used with seasonal influenza.
Influenza is also known as the flu.

- Influenza is different from a cold
- Comes on suddenly and may include symptoms of fever, headache, tiredness, dry cough, sore throat, nasal congestion and body aches
- Most people who get influenza will recover in one to two weeks
- Some develop life-threatening complications and can die
- Usually elderly, those with chronic medical problems and very young children
- Influenza is the most common infection causing death in Canada
- Vaccine is most important means of protecting HCW's
- However, the use of respirators should be considered for any HCW who is required to have close contact with people who are ill - especially important for HCW's who have not been immunized

Tuberculosis

Infectious respiratory disease (when it is active pulmonary TB) caused by *Mycobacterium tuberculosis.*

- Spread by droplet nuclei and contact

- Respiratory protection has been an important part of TB control programs for many years
- Incidence of TB started rising in 1985 after decades of decline
- TB primarily affects the lungs but can affect other organs and tissues
- Improved control programs were put into place in the early 90's and the trend started to reverse in 1992. You can see that many of the documents referenced in the resource manual are dated in the 90's
- The rate of reported TB has dropped 47% between 1992 and 2001

Severe Acute Respiratory Syndrome (SARS)

Viral illness characterized by fever and respiratory symptoms that can progress to respiratory failure and death.

- Caused by a coronavirus
- Thought to be spread by droplet route and direct contact
- Some procedures can create airborne spread
- Initial reports of a highly contagious atypical pneumonia originated from Guangdong Province in China in November 2002
- The disease remained isolated to China until Feb 2003 when an infected physician traveled to Hong Kong
- Since then, the disease has spread to affect over 8000 individuals and more than 30 countries
- In Ontario, as of August 7, 2003, two clusters of SARS have resulted in 247 probably cases and 41 deaths
- HCW's have been affected significantly - countless numbers burdened by a difficult work environment, many have become ill and at least two HCW's have died from the disease (again these stats may need to be updated)
- More info on SARS can be found at the following web sites - WHO, Health Canada, Ontario MOH&LTC and the CDC

Other infectious diseases

Infection by moulds and fungi such as aspergillus and histoplasma.
Viral diseases such as smallpox, hemorrhagic fevers, measles and chicken pox, hantavirus
Some bacterial infections causing respiratory illness, such as legionnaires' disease

- guidance regarding appropriate PPE for various infectious agents can be obtained from infection control or occupational hygiene professionals
- also refer to HC document Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care
- document contains guidance about specific infection control precautions for a number of infectious diseases, and addresses precautions for different types of settings including acute care, long term care and community care

Relevant Legislation, Standards and Guidelines

Relevant Legislation

Occupational Health & Safety Act (OHSA)

- Duties of Employer - Section 25 & 26
- Duties of Supervisor - Section 27
- Duties of Worker - Section 28

Regulations for Health Care & Residential Facilities

- Sections 8, 9 & 10

Regulations for Industrial Establishments

- Sections 79, 124 & 130

Reference Appendix A: Excerpts from the OHSA Related to Respiratory Protection.

Standards & Guidelines

Standards and guidelines are not legally binding, but provide guidance from expert or consensus agencies about certain issues. Important guidelines related to respiratory protection include:

Canadian Standards Association

- CSA Z94.4-18, Selection, Use and Care of Respirators, September 2018 (CSA standards are available from the Canadian Standards Association, www.csagroup.org/)
- The CSA Standard specifies the requirements for the proper selection, use and care of respirators and outlines the essential components necessary for an effective RPP

Public Health Agency of Canada

- Guidelines for Preventing the Transmission of Tuberculosis in Canadian Health Care Facilities and Other institutional Settings, 1996
- Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care, 1999
- Infection Control Guidelines - Prevention and Control of Occupational Infections in Health Care, 2002 -- *available online at:* https://www.canada.ca/en/public-health/services/reports-publications/disease-prevention-control-guidelines.html#infection

Centers for Disease Control and Prevention (CDC) and The National Institute for Occupational Safety and Health (NIOSH) (USA)

- CDC Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health Care Facilities, 1994
- Protect Yourself Against Tuberculosis - A Respiratory Protection Guide for Health Care Workers, December 1995
- TB Respiratory Protection Program in Health Care Facilities - Administrator's Guide, September 1999. *(Centers for Disease Control and NIOSH guidelines are available online through the CDC/NIOSH website at: http://www.cdc.gov/niosh/)*

Provincial Infectious Diseases Advisory Committee (PIDAC), under Public Health Ontario (PHO)

- Annex B: Best Practices for Prevention of Transmission of Acute Respiratory Infection in All Health Care Settings, May 2010.

Ontario Health Plan for an Influenza Pandemic (OHPIP) - Chapter 5 *(Guideline is available online through the MOH & MOL TC website at:*

http://www.health.gov.on.ca/en/pro/programs/emb/pan flu/docs/ch 05.pdf

Other important Acts related to infectious diseases include:

- Emergency Management and Civil Protection Act - allows the Lieutenant Governor in Council or the Premier to declare an emergency in Ontario for situations "...that could result in serious harm to persons or substantial damage to property and that is caused by forces of nature, a disease or other health risk..." EMCPA, R.S.O 1990 c. E.9 *(this Act is available online through e-laws at: http://www.e-laws.gov.on.ca/html/statutes/english/elaws statutes 90e09 e.htm*

Health Protection and Promotion Act - allows the Chief Medical Officer of Health to issue directives to health care practitioners related to precautions or procedures to be followed to protect the health of Ontarians; this can include directives related to worker health and safety and the use of personal protective equipment *(this Act is available online through e-laws at: http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h07_e.htm*

Respiratory Protection Programs

"Respiratory protection shall be used to protect a user from inhaling a hazardous atmosphere when engineering or administrative control measures are not practicable or not adequate, while such controls are being instituted, or during shut-down for maintenance, repair or emergency"

CSA Z94.4-18 – Selection, Use and Care of Respirators
Section 4.1

Why is this CSA statement important?

Notes:

Developing a Respiratory Protection Program

A successful and legally compliant respiratory protection program is important in the provision of a safe workplace. The initial and continuing success of this program depends on the level of commitment from senior management.

A well-designed program will address the following 10 elements:

1. Roles & Responsibilities
2. Hazard & Risk Assessment
3. Respirator Selection
4. Health Surveillance
5. Training
6. Fit Testing
7. Use of Respirators
8. Care of Respirators
9. Program Evaluation
10. Record Keeping

These elements should be addressed in the order that they are presented, with the exception of record keeping which should be done throughout. For example, an employer should not begin fit testing workers until a proper health surveillance has been completed.

Roles and Responsibilities

Employer

- Ensure that the respiratory protection program is prepared and implemented
- Consult with the joint health and safety committee/health and safety representative and others in the development of the program
- Designate a competent person as the program administrator
- Ensure that suitable resources are available for implementing and maintaining the program

Program Administrator

- Take the lead role in the respiratory protection program
- Maintain a close relationship with infection control personnel regarding respiratory protection for infectious diseases
- Ensure that all aspects of the respiratory protection program are addressed and implemented
- Ensure that qualified personnel have been assigned to the defined roles and qualified people conduct assessments for respiratory hazards
- Maintain a list of accepted respirators selected for use in the workplace for each respiratory hazard and a list of all respirator users in the organization - update lists annually
- Ensure procedures have been developed for: user screening and, where necessary, medical assessment and the issuance of selected respirators
- Ensure that all persons (including contract workers) required to use respirators complete user screening, receive written instructions, training and fit testing prior to initial use of a respirator; and fit testing is completed again for those persons at a designated interval or when required.
- Ensure that all persons required to use respirators are able to demonstrate competency in respirator use and receive additional training as required.
- Monitor the use and condition of respirators
- Ensure that the respiratory protection program is reviewed at least annually

Employee

- Use and care for the respirator in accordance with the written instructions and training provided by the employer
- Employees required to wear tight-fitting respiratory protection in the workplace must maintain their respirator seal interference free in order to achieve a proper seal between their face and the respirator facepiece
- Inspect the respirator prior to use and at intervals that will ensure that the respirator continues to operate effectively
- Perform a user seal-check prior to use
- Notify their supervisor of any condition or change that may impact on their ability to use a respirator safely
- Attend and participate in any training or fit-testing sessions as requested

Department Supervisor

- Ensure that user screening, training, fit testing and medical assessments as required are completed prior to assigning an employee any task or to any area that requires the use of a respirator
- Ensure that employees required to wear tight-fitting respiratory protection in the workplace maintain their respirator seal interference free in order to achieve a proper seal between their face and the respirator facepiece
- Ensure respirator users demonstrate competency in respirator use
- Maintain a list of all respirator users (and the respirators they are approved to use) under their supervision and ensure that employees are using and caring for their respirators as directed
- Provide information to the health care professional conducting the medical assessment of the conditions around respirator use

Person Selecting Respirators

- Have competence from training and experience to carry out this role
- Review the assessments of respiratory hazards identified in the workplace and select those accepted respirators suitable for protection against those hazards

Respirator Fit tester

- Have competence from training and experience to carry out this role
- Conduct fit tests according to accepted protocols for those respirators selected for use in the workplace; and follow procedures related to interference concerns
- Ensure the proper care (i.e. cleaning and sanitizing) of fit testing equipment and respirators used for fit testing

- Ensure respirator users are trained and competent in respirator use (i.e. inspection, donning, user seal-check and doffing); user competency and fit test results must be documented
- Create and maintain fit-test records according to written instructions and create and maintain records of the fit test equipment maintenance, calibration and repair
- Notify program administrator of any employee concerns

Maintenance Personnel

- Have competence from training and experience to carry out this role
- Inspect, maintain, repair and test respirators in accordance with the manufacturers' written instructions

Health Care Professional

- Have knowledge of the health effects associated with the respiratory hazards to which users may be exposed as well as knowledge about infection control and transmission of infectious diseases
- Have knowledge of the physiological and psychological stresses associated with use of the selected respirators under the anticipated working conditions
- Assess users' ability to use the selected respirator safely, and report to the program administrator whether the user meets, meets with limitations, or does not meet the medical requirements to use the selected respirator.
- Specific instructions regarding limitations are required

Joint Health and Safety Committee

- Be consulted during the development of the program
- Maintain communication with the program administrator and the employer and monitor the program in an advisory capacity
- Address any health and safety concerns brought to the committee's attention

Others

- All persons who must enter an area where the use of respiratory protection is required shall be provided with and use appropriate equipment, including instructions regarding use and limitations
- External contractors who provide their own respiratory protection must have been fit-tested successfully by their employer prior to using their equipment as part of the contractor safety program

Hazard and Risk Assessments

The key to addressing hazards effectively is to follow the four steps of the RACE model.

R	A	C	E
Recognize	**Assess**	**Control**	**Evaluate**
• Workplace Inspections • Hazard Identification Tool • Job Hazard Analysis • Observations • Problems/concerns of anyone • Use your senses • Review of documents	• Compare to a standard • RISK ASSESSMENT • Identify how the individual might be harmed • Identify how likely the hazard is going to cause harm • Identify how severe the harm could be • Identify Hazard Priority	• LOCATIONS • At the Source • Along the Path • At the Worker • TYPES OF CONTROLS • Elimination or substitution • Engineering • Work Practices • Administrative • Personal Protective Equipment (PPE)	• The control is working as expected • The control has been communicated to affected workers • Reduce the risk • Reduce complaints/injuries • Does not create new hazards

Under the Health Protection and Promotion Act, the Chief Medical Officer of Health, issues directives to health care practitioners to consider the precautionary principle in determining whether an immediate health risk is present as a result of an outbreak of an infectious or communicable disease.

Employers are required to conduct a hazard assessment in consultation with the JHSC in order to identify and implement measures to protect workers. The purpose of the hazard assessment is to determine the likelihood of exposure to a hazard and the potential consequences of the exposure. The hazard assessment should take into account the precautionary principle (i.e. when there is scientific uncertainty about the consequences ofexposure) settings should assume the potential risks are high.

A hazard and risk assessment must be completed by a qualified person. Such as an in-house expert or an external contractor. In-house experts that may be included are infection control practitioners, occupational hygienists, occupational health professionals, pulmonary disease specialists, environmental services (engineering), public health representatives, supervisors, biosafety officers, field and laboratory staff, microbiologists, etc.

We use the acronym RACE to signify the fact that the hazard must first be **r**ecognized, the risk **a**ssessed, the necessary **c**ontrols put in place, and finally the controls **e**valuated to ensure it is doing what was intended.

Respirator Selection

For many infectious agents, the identification of appropriate respirators has been done by experts such as Health Canada and the Centre for Disease Control. The CSA standard proposes a hazard risk assessment and respirator selection process for bioaerosols.

We recommend adherence to existing applicable standards and guidelines. It is important to follow the hazard and risk assessment process based on RACE. A detailed review of factors involved in respirator selection process must be documented.

In summary:

- Adhere to regulations & OELs
- Consider evidence-based contaminant-specific best practices, or IPAC guidance
- Use CSA's control-banding approach in the absence of regulatory requirements or industry-specific requirements/ standards
- Complete by a qualified person(s) & consult relevant experts, if needed
- Document the factors involved in the selection process

Notes:

Two Major Classifications of Respirators

Air Purifying Respirators

Atmosphere-Supplying Respirators

1. **Air-purifying respirators** are respirators with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

2. **Atmosphere-supplying respirators** are respirators that supply the user with clean breathing air from a source independent of the ambient atmosphere. Examples include supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Note that there are many varieties of each classification of respirators.

Notes:

Atmosphere Supplying Respirators

Atmosphere Supplying Respirators operate with air provided from a source independentof the surrounding atmosphere.

There are two types of atmosphere-supplying respirators:

Supplied-Air Units (SARs) are useful when the concentration of the contaminant is so high or so toxic that an air purifying respirator is inadequate - airline or hose can be connected to a face piece, helmet, hood or suit.

Self-Contained Units, otherwise known as **Self-Contained Breathing Apparatus (SCBA)** - are often used by firefighters or scuba divers - these are the most protective respirator and usually used only in emergency or immediately dangerous to life and health (IDLH) situations.

Atmosphere-Supplying Respirators are very complex pieces of equipment with many styles & variations.

SCBA is used when ambient air cannot support life (e.g., oxygen levels <19.5%) or when the hazard has specific properties that make them dangerous (e.g., IDLH)

Air-Purifying Respirators

Air-purifying respirators can purify the air of gases, vapours, and particulates, but do not supply clean breathing air. The air-purifying respirator has either a filtering facepiece or an attached filter, cartridge and/or canister that contains specific material needed against the contaminant. These respirators must never be used in oxygen-deficient atmospheres.

Selection of respirators, cartridges, and determining change-out schedules for chemical contaminants can be quite challenging. Consult an occupational hygiene professional or competent person for this task and document in RPP.

There are two types of Air-Purifying Respirators:

Particulate-removing respirators (e.g., N95, half face with cartridges) are designed to filter dusts (nuisance, toxic, asbestos-containing), fumes, mist, radon daughters, biological agents or fibres, or any combination of these substances. These respirators can be either single-use or fitted with replaceable filters that could be used until their effective life has expired. These respirators may be non-powered or powered air-purifying.

Vapour and gas removing respirators use canisters or cartridges filled with a sorbent (e.g., charcoal) that cleans some portion of the vapours or gases from contaminated air before it can enter the breathing zone of the workers. Cartridges must be matched to the right contaminants.

Combination cartridges and canisters are available to protect against particulates, vapours and gases.

Note:

- An occupational hygienist should ensure that adequate protection is provided.
- Air-purifying respirators must not be used where the oxygen content of the air is less than the equivalent of 19.5% at sea level.
- Air-purifying respirators must not be used in IDLH atmospheres.

Non-Powered Air-Purifying Respirators

Air-purifying respirators can be non-powered and powered. They are available in three basic configurations: quarter, half and full facepiece.

Examples shown below are:

- a disposable half-facepiece (N95, filtering facepiece)
- a non-disposable half facepiece respirator
- a non-disposable full facepiece respirators



Non-powered air-purifying respirators can be uncomfortable due to the tight fit, moisture build up and the resistance to breathing. They require the user to create a negative pressure by drawing in air with each breath so that the contaminants will be captured.

Powered Air-Purifying Respirators (PAPRs)

A powered air purifying respirator uses its own battery power source and a high-efficiency particulate air (HEPA) filter to supply the wearer with filtered air.


A PAPR provides a higher level of respiratory protection than a filtering face piece or half-mask elastomeric respirator, becausea HEPA filter is as efficient as a P-100 filter and because PAPRs have a lesser amount of face-seal leakage.

Fit testing is not required as there is no tight-fitting seal.

A PAPR respirator:

- Creates positive pressure, which increases comfort
- Can be used where other less protective respirators cannot
- Must be cleaned properly
- It is limited by the battery life in addition to canister, cartridge, or filter life and must be checked for flow before each use
- Available as a facepiece, loose-fitting facepiece, helmet, hood or suit

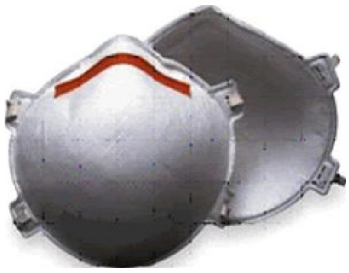
Surgical Masks

Surgical masks are not respirators!

Surgical masks are worn in a wide range of healthcare settings to protect patients from the wearers' respiratory emissions.

They are loose-fitting, disposable devices that prevent the release of potential contaminants from the user into their immediate environment. Surgical masks were designed to protect the patient from the user, not the other way around. They do not typically have the N95 NIOSH - approved respirator status. Fit testing is therefore not required.

NIOSH -Approved Respirators



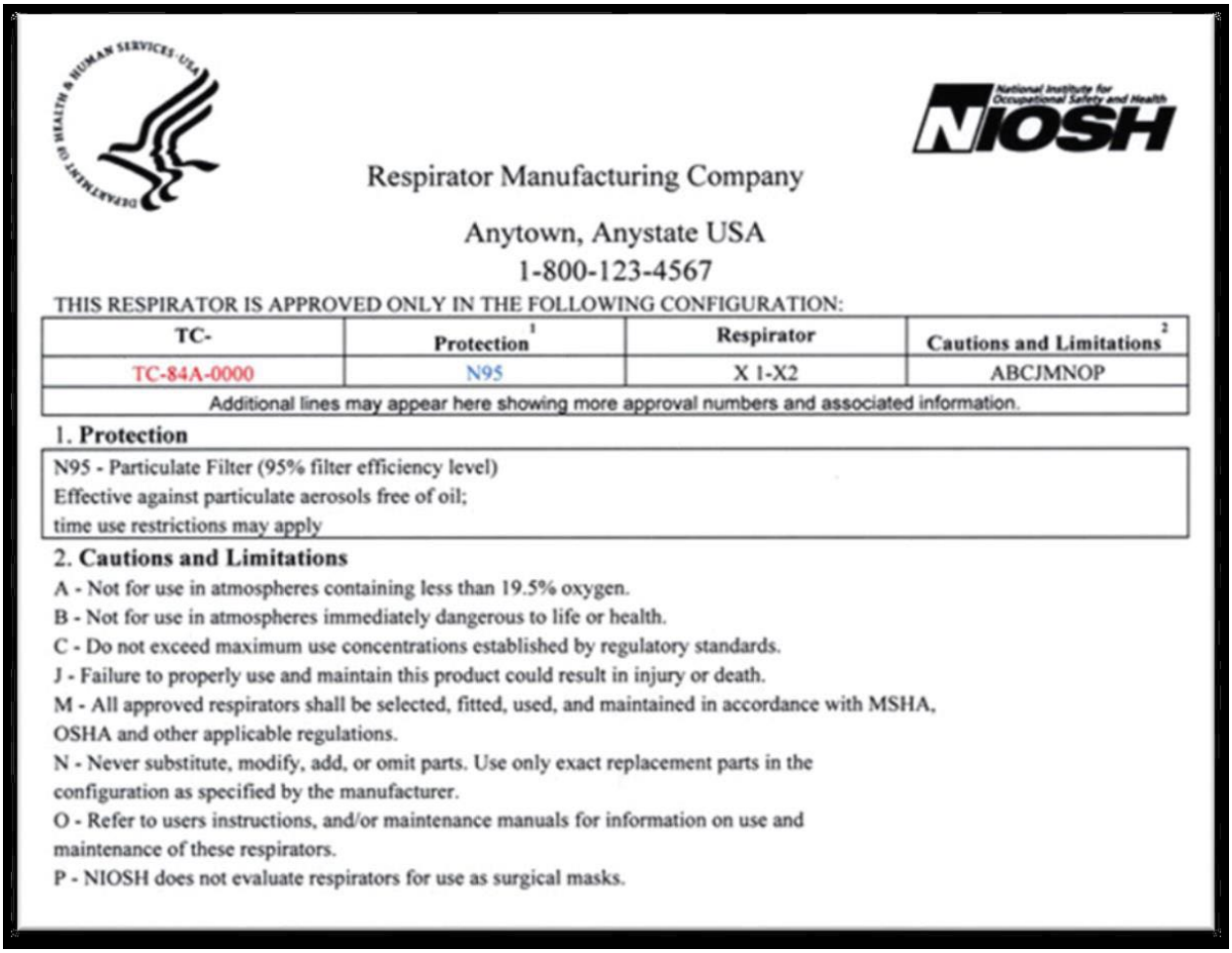
When the need for a respirator is ascertained, a NIOSH-approved respirator must be selected. Currently, the NIOSH scheme is the accepted minimum standard for protection against airborne infectious diseases.

In Ontario, N95 NIOSH certified respirators are the minimum standard for protection against airborne infectious diseases and there are no equivalencies.

Respirators with a higher level of protection (e.g., NI00) can be used, especially during outbreaks where certain respirator brands may be in limited demand.

NIOSH -Approved Label

Use NIOSH-Approved label to verify certification:



Respirator Manufacturing Company

Anytown, Anystate USA

1-800-123-4567

THIS RESPIRATOR IS APPROVED ONLY IN THE FOLLOWING CONFIGURATION:

TC-	Protection[1]	Respirator	Cautions and Limitations[2]
TC-84A-0000	N95	X 1-X2	ABCJMNOP
Additional lines may appear here showing more approval numbers and associated information.			

1. **Protection**

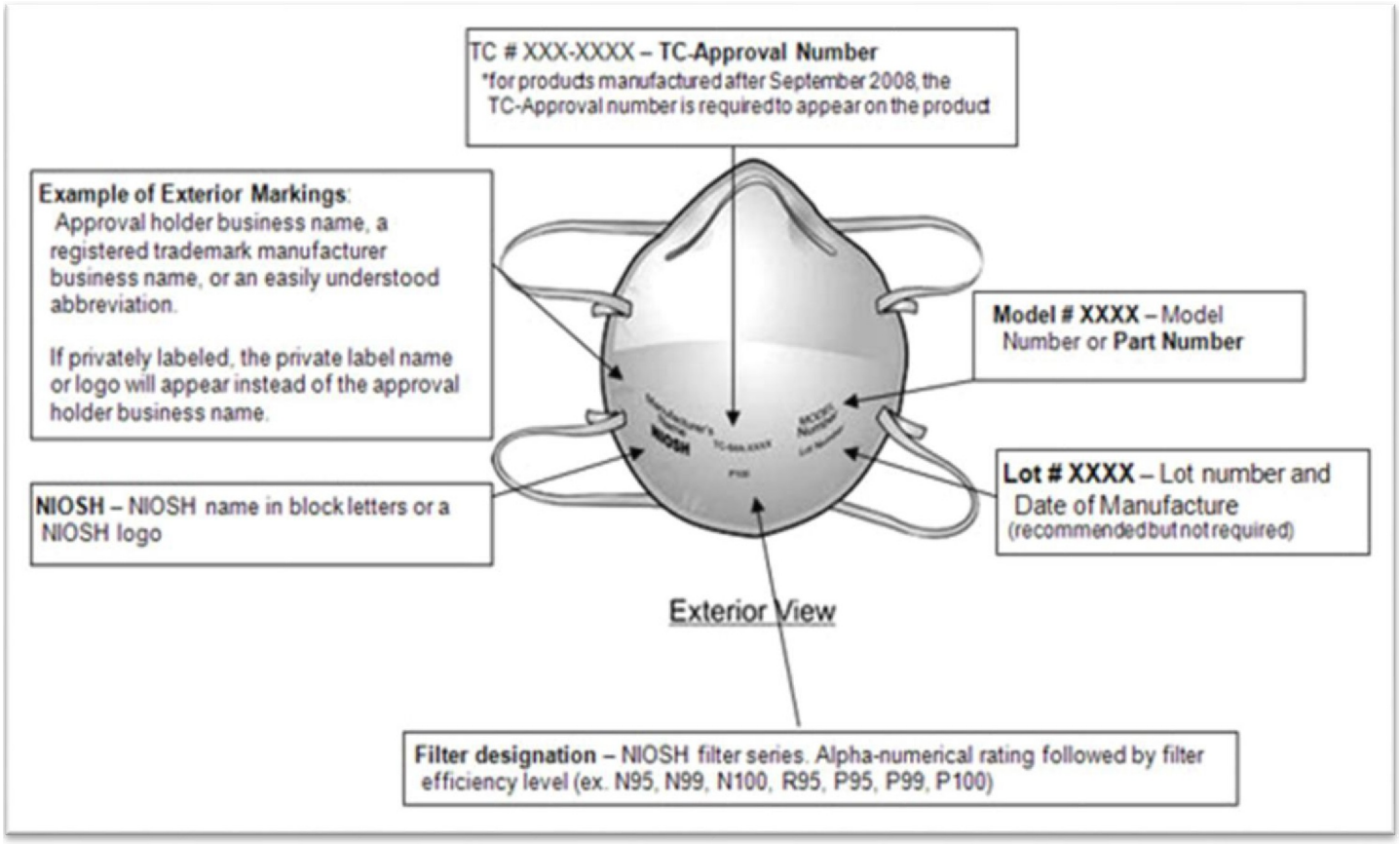
N95 - Particulate Filter (95% filter efficiency level)
Effective against particulate aerosols free of oil;
time use restrictions may apply

2. **Cautions and Limitations**

A - Not for use in atmospheres containing less than 19.5% oxygen.
B - Not for use in atmospheres immediately dangerous to life or health.
C - Do not exceed maximum use concentrations established by regulatory standards.
J - Failure to properly use and maintain this product could result in injury or death.
M - All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA and other applicable regulations.
N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
O - Refer to users instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
P - NIOSH does not evaluate respirators for use as surgical masks.

Check the label and marking to verify that your respirator has a NIOSH approval:
All NIOSH-approved respirators have a TC Approval Number. TC stands for **tested** & **certified.** The NIOSH TC approval number can be found on the NIOSH approval label, which is located within the packaging.

Use NIOSH- Approved Markings to Verify Certification



The drawing above shows typical markings on approved filtering facepiece respirators. The TC approval numbers are present on all NIOSH-approved filtering facepiece respirators, although they may appear either on the face, on the exhalation valve (if one exists) or on the head straps. The N95 marking may or may not be on the respirator at **all.** The model or part number marked on the respirator will also appear on the approval label.

The NIOSH Certification System

Respirator filters are tested by NIOSH at the time of application and periodically afterward to ensure that they continue to meet the certification test criteria. If they pass the performance criteria, then they are approved and become NIOSH-certified respirators.

Filters can be approved based on three efficiencies and three classes:

3 Efficiencies

95 - Filters at least 95% of airborne particulates.
99 - Filters at least 99% of airborne particulates.
99.97 - (essentially 100%) - Filters at least 99.97% of airborne particulates. Considered equivalent to HEPA (High Efficiency Particulate Air) filters. HE Filters used on PAPRs only.

3 Classes

N - Not resistant to oil (Not)
R - Somewhat resistant to oil (Resistant)
P - Strongly resistant to oil (Oil Proof)

N95 class is the minimal approval level for use with infectious diseases

Notes:

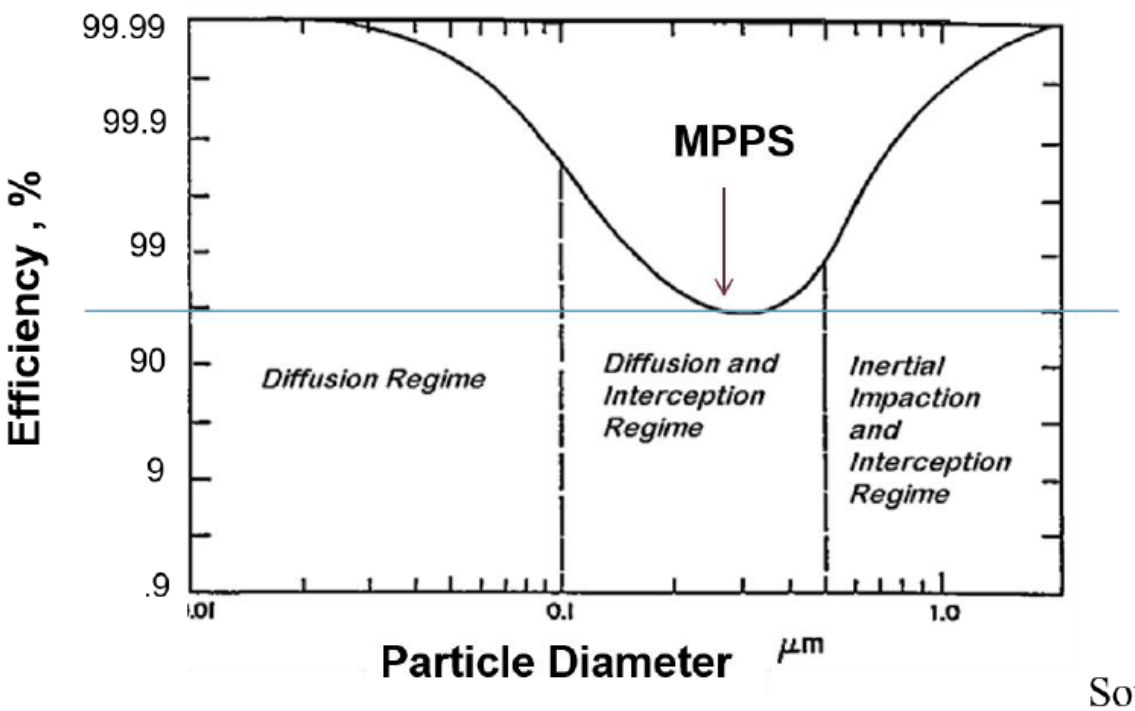
NIOSH N95 Respirator Certification

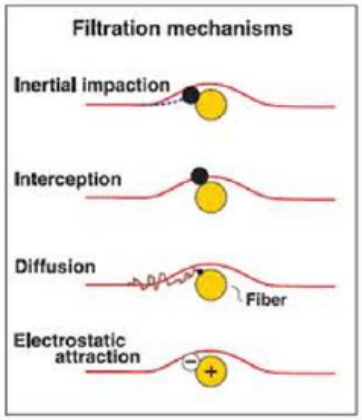
Respirator filters must meet stringent certification tests (42 CFR Part 84) established by NIOSH.

The NIOSH respirator approval regulation defines the term N95 as a filter class that removes at least 95% of airborne particles during "worse case" testing, using a "most-penetrating" sized particle during NIOSH testing. Particles in the range of 0.1 to 0.3 microns are used because they are the most difficult particle size to "capture" in a respirator matrix. Filters meeting the criteria are given a 95 rating. Many filtering facepiece respirators have an N95 class filter and those meeting this filtration performance are often referred to simply as N95 respirators.

As a result of these stringent performance parameters, fiber diameters, porosity, and filter thicknesses of all particulate filters used in NIOSH-certified respirators, including N95s, are designed and engineered to provide very high levels of particle collection efficiencies at their most penetrating particle size (MPPS).

This graph illustrates that N95 respirator filters are closer to being more than 99% effective against much larger (& smaller) particle sizes. Most droplet nuclei are larger than the MPPS:





Source: NIOSH

Health Surveillance

The purpose of a health surveillance (also termed 'health assessment') is to identify medical conditions that may place an employee, required to use a respirator, at risk of medical consequences.

The health surveillance -

- Must be completed prior to fit testing & respirator use
- Must be documented & may need to be repeated
- Determines physiological or psychological conditions that may preclude respirator use
- Health information must be kept confidential
- Medical evaluation must be completed by a health care professional

Employees assigned to tasks requiring the use of a respirator must undergo a health assessment. The health assessment is intended to identify medical conditions that may make the use of respirators themselves a hazard to the individual. See Appendices for sample health screening tools.

The employer, in consultation with a health care professional, must develop and document a health assessment and surveillance protocol that assesses the employees' ability to wearthe respiratory protection safely and ensures their ongoing safety.

Initial screening can be done by the respirator user, however, if further health surveillance is required it must be carried out by a health care professional (e.g., physician trained in occupational medicine, occupational health nurse, family physician or medical specialist) who is competent through education and experience.

The health surveillance (assessment) may need to be repeated if:

- An employee reports adverse health effects from wearing respirator;
- Physician, supervisor or Program Administrator requests reassessment; or
- There is a change in workplace conditions that may result in increase in physiological burden on employee.

Results of medical evaluation should:

- Be in writing & kept in a confidential location
- Consider allergies, medications & other implications of PPE worn
- Indicate whether the employee can:
  - Use the respirator
  - Use the respirator with restrictions; or
  - Not use a respirator at all
  - Include specific restrictions, if indicated

The healthcare professional completing the medical evaluation must be aware of the medical conditions that may lead to adverse health outcomes due to respirator use.

Medical conditions that compromise one's ability to tolerate respirator use include:

- Cardiovascular and respiratory disease, including a history of high blood pressure, angina, heart attack, cardiac arrhythmia, stroke, asthma, chronic bronchitis, emphysema
- Reduced pulmonary function caused by other factors, such as prior exposure to respiratory hazards
- Neurological or musculoskeletal disorders, including ringing in the ears and epilepsy
  - Lower back pain may also be a concern if the respiratory protection to be used is heavy or cumbersome such as some powered air-purifying or supplied-air respirators
- Impaired sensory function, such as perforated ear drums, reduced or absent ability to smell
- Presence of latex allergy or potential for latex allergy (if there is latex in the respirator to be used)
- Psychological disorders including claustrophobia and severe anxiety

The CSA standard provides guidelines and references that can assist a healthcare professional in identifying medical conditions.

In general, normal healthy individuals will not be affected by wearing respirators, particularly the lightweight air-purifying types. The use of more complicated equipment such as a self-contained breathing apparatus (SCBA) under emergency conditions, however, warrants a more careful evaluation.

- Organization must develop procedures & forms to outline the processes & standards to meet the health surveillance requirement
- Supervisors must provide the information on the type of respirator, the job & the working conditions
- Ideally this is addressed in routine pre-placement orientation process

The following are suggested strategies for carrying out health assessments:

- Entire health assessment is completed by a physician
- Health assessment completed by an OHN - referral to physician if any concerns are noted
- "Respirator User Screening Form" is completed by the employee and reviewed by the OHN - referral to physician if any concerns noted; or
- Supervisors can collect non-confidential information and refer to healthcare professional if employee identifies contraindication to respirator use

Refer to CSA Z94.4-18 Annex E, Figure E.1, pages 96 to 97, *Sample Respirator User Screening Form.*

Refer to Appendix F of this workbook for a streamlined version for disposable particulate respirators: *Disposable Particulate Respirators Health Screening (non-disclosure) Form.*

The Appendix section of this workbook includes examples of other forms that may be of interest depending on the health assessment strategy selected by an organization.

Notes:

Training

- Training must be completed before or at time of fit testing
- It must be provided by a qualified person with practical understanding
- For role-specific training, trainer must have task-specific qualifications
- It must be designed to address hazard-specific risks
- It must be comprehensive & complete
- It must include the care & practical use of respirators, limitations, repair & maintenance
- Written instructions must be provided to workers.
- Core competencies of fit testers must be verified
- Accurate records must be documented & maintained
- The PA determines training requirements & frequency

Training must be provided to workers to ensure they have a practical understanding of the respiratory protection program requirements.

The training program must be developed in consultation with the JHSC and include:

- policies, procedures, roles and responsibilities of respirator users
- the respiratory hazards encountered in the workplace, their potential health effects on the worker, and the means to control them
- the rationale for the respirators selected and where to find more information about them
- donning, user seal checks and safe removal of respirators (and other PPE)
- care, cleaning, inspection and storage of PPE
- changing of filter element as required
- identification of problems
- procedures to follow in case of an emergency
- basic maintenance
- familiarity with adherence to the manufacturer's instructions

For respirator use against infectious agents, it is important to include training in where to remove the respirator, specific disposal techniques and adequate hand hygiene and decontamination after removing the respirator.

The employer shall provide additional training for the respirator user or other individual assigned one or more roles in the respiratory protection program where --

(a) A review cannot confirm that the individual remains qualified

(b) The program administrator indicates that additional training is required

(c) A review indicates that additional training is needed to meet the required level of competency

Where such training is required, it shall be designed, delivered, evaluated, and documented to ensure that it meets the requirements of the CSA standard.

It is important to maintain documentation of all program instruction.

Notes:

Fit Testing

Comfort & Fit

After respirator selection, observe comfort & fit:

- Proper placement of the chin
- Proper fit & position of the facepiece on the nose
- Strap tension & positioning
- Full contact of the sealing surface to the face
- Any interferences with face-to- facepiece seal
- Stability to stay in position during movement (including talking) or contact with other integrating PPE or accessories
- Repeated successful user seal check

Note: A five (5) minute waiting period is required

Assess the following movements for comfort & fit:

- Nod head up & down
- Tilt head with left ear touching left shoulder & then right ear touching right shoulder
- Turn head from one side to the other
- Shake head twice vigorously
- Perform facial expressions: open & close mouth as if speaking, move the jaw left to right, up & down, smile, frown

Notes:

The wearer must be asked to rate the respirator facepiece for comfort & fit according to the criteria list here:

Rating	Level of Comfort
0	No Issue
1	Discomfort that can be ignored
2	Some discomfort, but able to function
3	Unacceptable; unbearable

A rating (score) of 2 should prompt the fit tester to initiate a new re-donning or repositioning or to use an alternative respirator option.

A score of 3 shall result in rejection of the respirator worn. If the appropriate facepiece for the application cannot be found, a protective alternative shall be made available within the scope of the RPP. A small percentage of users will not be able to use any tight-fitting facepiece.

A new re-donning or repositioning does not constitute a fit test failure. Going with an alternative respirator means the first one is excluded.

When the test subject has successfully achieved facepiece pre-use inspection, donning, doffing, and user seal checks without assistance, the subject shall be deemed ready for fit testing.

Fit Testing is required for all tight-fitting respirators.

The CSA standard is clear that no one is to use a tight-fitting respirator until a satisfactory fit has been verified by fit testing (CSA Z94.4-18, Clause 9.1.2, page 47).

Fit testing is done after an employee has completed a health assessment & training, but prior to the initial use of a respirator

Fit testers must be:

- competent in fit testing protocols, as well as able to verify effective seal, comfort & fit
- able to manage the overall fit testing process & verify certain key aspects

Qualitative vs. Quantitative Fit Testing

There are two basic categories of fit testing: qualitative & quantitative

Qualitative

Quantitative

The chart below outlines the advantages & disadvantages of each category:

	Advantages	Disadvantages
QLFT	• Easy to perform • Cost-effective • Faster to conduct	• Subjective response • Depends on user's ability to taste, smell • Fit-testing agents & hood not pleasant for user • May have adverse health effects
QNFT	• Objective & reliable results • Hard copy of results • No challenge agents or chemicals used	• More expensive & takes longer • More complex equipment • Machine susceptible to airborne contaminants

The most common acceptable fit-testing protocols for particulate respirators are:

QLFT	QNFT
Saccharin Solution Aerosol & Bitter Aerosol (Bitrex™) Protocols 	Particle-Counting Instrument Procedure (e.g. Portacount Plus® from TSI) 

- Fit testing must be carried out at least every two (2) years, but best practice is to do it annually (NIOSH/OSHA standard)
- Fit testing must be carried out whenever there is:
  - a change in respirator (e.g., make, model, size)
  - a significant change to the user's physical condition (e.g., dental work, facial injury, >10% increase or decrease in weight) or comfort
  - an issue with completing user seal check
  - any other PPE required

After passing the fit test, ask the wearer:

- Does this respirator provide you an acceptable comfort level for the scope of your work?
- If the wearer answers 'no', provide a protective alternative within the scope of the RPP.

Notes:

Use of Respirators

To minimize potential exposures, employers must make sure that workers know how to properly use their PPE. Users must be able to effectively don and doff (that is, put on, and take off) their respirators, and conduct a seal check every time they use the respirator. The purpose of a seal check is to make sure your respirator (which has been previously fit tested) is properly positioned on your face to prevent leakage during use and to detect functional problems. Respirators must also be free of interferences.

Interferences include anything that can block the seal between the wearer's face and the tight-fitting respirator.

Examples:

- hair
- eyeglasses
- clothing
- tissue
- straps
- jewelry
- facial hair
- make up
- creams or lotions

Notes:

Proper Care of Respirators

- Dispose of respirators after use with infectious bioaerosols, as directed by the manufacturer (exception, inert dusts)
- Replace respirators when they become damaged, soiled, unhygienic; or based on the change-out schedule
- Store outside of contaminated area & protect against other potential hazards
- You should always refer to the time use restrictions specified by the manufacturer or regulation.

Note: Be aware some manufacturers provide expiry dates

Respirators must be properly cared for so that they remain in the good condition and retain their original effectiveness (CSA Z94.4-18, Clause 11.1.1).

To retain the respirators' original effectiveness:

- Clean & sanitize according to manufacturer's instructions & IPC internal & external guidelines
- Inspect before & after each use in accordance with manufacturer's instructions
- Store in a manner that will protect against any potential hazard that could have a detrimental effect

Notes:

Proper Care of Non-Disposable Respirators

- Cartridges, canisters and filters require proper selection and a change-out schedule (e.g., max use, ESLI, breathing resistance)
- Cleaning, sanitizing and storing practices have to be established
- Inspection of parts is more involved
- Maintenance can only be done by a qualified person according to manufacturers' guidelines
- Records of inspection and maintenance must be kept

Users must learn how to take good care of their respirators:

Cleaning:

- Clean and disinfect respirators after each use, where appropriate
- Remove dirt
- Do not clean with solvents
- You can use disposable wipe pads that do not contain alcohol to wipe off respirators in between uses during the workday. The wipe pads come in small packets and can be taken where user works
- Disassemble respirators before cleaning
- Cartridges and filters cannot be cleaned
- Cartridges should be either disposed of or reused, depending on their condition
- Cartridges to be reused should be removed from the respirator and stored in a standard zipper lock plastic bag
- Wash respirator with a mild dish detergent or a combination of detergent and disinfectant. Use a brush and warm water (49-60(JC or 120-140(JF)
- 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 clothesline. Position the respirator so that the facepiece rubber will not "set" crookedly as it dries

Inspection:

- Stretch the elastic on the straps. Be sure the elastic isn't becoming loose. Also check the straps for tears
- Check the lens for cracks or other damage, if applicable
- Inspect the face seal. Make sure nothing interferes with the fittings. Check for dirt, cracks, or tears
- When you perform seal checks on the respirator, one should be able to tell if the valves are working properly

- Look for any other worn, damaged, or missing parts. If you spot a problem, get a different respirator and report the problem to the appropriate supervisor so the respirator can get tagged and repaired

Maintenance:

- Permit only trained and qualified personnel to repair respirators
- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and will use only the respirators manufacturer's NIOSH-approved parts designed for the respirator
- Do not mix parts from different manufacturers.
- Repairs will be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed
- Reducing and admission valves, regulators, and alarms will be adjusted or repaired only by the manufacturer, or a technician trained by the manufacturer

Program Evaluation

Annual program review should include:

- Changes in legislation, standards & guidelines
- Policy, procedure & work instruction review
- Proper selection, use & care of respirators
- Records review & results of fit testing
- Demonstration of competencies & effective training
- Concerns raised by respirator user (including comfort)
- Incidents, injuries, or illnesses attributed to respirator use

Respiratory protection programs must be evaluated to verify compliance with applicable internal or external legislation, standards and/or guidelines. Refer to the CSA standard for more examples and guidance as it relates to program evaluation.

Notes:

Record Keeping

Appropriate records must be kept of all respiratory protection program activities

Please see Appendix H: Sample Fit Testing Record Form

It is the responsibility of the Program Administrator to ensure that appropriate records are kept of all respiratory protection program activities as required by the CSA standard, applicable legislation and/or your organization's policy.

Your record for fit testing should include:

- Date and name of person tested
- Name of fit tester
- Specific make, model and size of respirator
- Type of fit test and agent used
- Pass/ fail criteria of method
- List of additional PPE worn during fit test
- Notes on restrictions (e.g., facial hair, dentures, eyewear)
- Results of comfort assessments (observation, movement and score)
- User's competency (including pre-use inspection, donning/doffing, user seal checks) and results of the fit test
- Result of post fit-testing comfort assessment validation question
- Info on unsuccessful fit test and nature/cause(s) for the failure
- Maintenance, calibration and repair of equipment

It is recommended that records are kept for 10 years

Notes:

Qualitative Fit Testing Practice

Qualitative Fit-test Procedure – Saccharin and Bitter Aerosol

Facility Requirements

- Waiting area
- Discussion and respirator selection and training area
- Room or rooms with adequate ventilation for sensitivity testing and fit testing
- If possible, separate rooms for sensitivity screening and fit testing are beneficial
- Access to a hand washing sink

Equipment Requirements

- Selection of respirators to be tested
- Solution for cleaning/disinfecting hoods
- Paper towels
- Watch or time-keeping device that counts seconds
- Health surveillance forms
- Fit-testing record forms
- Fit-test cards
- Instruction sheet
- Waterless hand sanitizer
- Pens
- Jugs with ice water and cups (to clear taste of challenge agent)
- Mirror
- Telephone and list of emergency numbers and department extensions
- Location signage for directing staff to fit testing
- Refreshments/candies/novelties for staff appreciation

Equipment Preparation

Follow manufacturers' guidelines to prepare the fit-test enclosure, sensitizing test solution and fit-test solution.

Procedure

Discussion

- Ensure the participant does not have any medical conditions or allergies contraindicating the fit-testing protocol. Ensure that the participant has completed a health assessment. If the participant indicates that there has been a change in health status, a referral for a new health assessment may be warranted.

- Confirm with the participant that they have had nothing to eat or drink (except plain water), and did not smoke or chew gum, in the past 15 minutes. Conduct fit test only if that is the case.

- Explain the entire screening and fit-testing procedure to the participant.

- QLFT procedure
- Reason it is required
- Importance of comfort
- Importance of using a respirator with a good seal
- Importance of fit test
- Description of challenge agent and how to identify it
- Need to wear any other PPE required during fit testing
- Explanation of QLFT exercises and how to perform them
- What will happen in the event of an emergency

Respirator Selection

1. If the participant doesn't have the make, model and size of a respirator already assigned, assist them to select a respirator that fits well. A variety of makes, models and sizes of respirators should be available.

2. Instruct the participant how to don and remove their respirator according to manufacturers' guidelines. Ensure participant can demonstrate proper donning and removal.

3. Instruct participant on how to conduct a user seal check according to manufacturers' guidelines. Ensure participant can demonstrate proper user seal check.

4. Instruct participant on how to inspect the respirator before each use. Ensure participant can demonstrate a proper inspection.

5. Provide written instructions to the participant on how to don, remove, conduct a user seal check and conduct an inspection of their respirator.

6. Complete any documentation required.

Sensitivity Screening

1. Accompany the participant to the room or area where sensitivity screening will be conducted and ask the participant to don the test enclosure or hood. The participant may sit or stand during the sensitivity screening and fit-testing procedure.

2. Instruct the participant to breathe through their mouth and report when he/she detects a sweet taste (saccharin) or a bitter taste (Bitrex™).

3. Using the nebulizer/atomizer, spray the threshold check solution 10 times. Direct the nozzle away from the mouth. If the participant reports tasting the agent, the sensitivity screening is over and the taste threshold is noted as 10 squeezes. (If the participant reports tasting the agent at any time during this step, the threshold should still be noted as 10 squeezes.)

4. If the first response is that they are unable to taste the taste agent after ten sprays, spray the threshold check solution 10 more times. If the participant reports tasting the agent, the sensitivity screening is over and the taste threshold is noted as 20 squeezes. (If the participant reports tasting the agent at any time during this step,the threshold should still be noted as 20 squeezes.)

5. If the second response is still that they are unable to taste after 20 squeezes, spray the threshold check solution another 10 times. If the participant reports tasting the agent, the sensitivity screening is over and the taste threshold is noted as 30 squeezes. (If the participant reports tasting the agent at any time during this step,the threshold should still be noted as 30 squeezes.)

6. If the participant can't taste the agent after 30 squeezes, the participant is unable to taste the agent and another fit-testing protocol must be used. (Note: In some cases, a person may have a temporary inability - caused by such things as a cold or recent dental work - to detect the agent. If this is determined, the participant should be rescheduled for another day.)

7. The outer surface of the nebulizer must be disinfected between each fit test and after the fit testing session using a disinfectant from the Health Canada List of Hard Surface Disinfectants for COVID-19. Discard the solutions and rinse the nebulizer with water, shake to dry and refill at least each morning and afternoon, or every four hours according to the fit test kit user instructions. Clean the nebulizer with soap and water and return equipment to the box at the end of the fit testing session.

8. Complete any documentation required.

Following sensitivity screening, cold water may be provided for participants to swish and rinse with. Participants should spit out the rinse water rather than swallow it, to prevent the taste from the sensitivity screening from lingering and affecting the fit- test procedure.

Qualitative Fit Testing

1. Accompany participant to the room or area where fit testing will be conducted andask participant to don their respirator and conduct a user seal check. (If eye protection or other appliances such as prosthetics or prescription glasses are also tobe used, these must be worn during fit testing.)

2. Ask the participant to don the fit-test enclosure or hood.

3. Instruct the participant to breathe through their mouth and report if he/she detects a sweet taste (saccharin) or a bitter taste (Bitrex™) throughout all of the following exercises. If the participant detects the agent during any of the fit-test exercises, thefit test is over and has failed. In that case, have the individual don and perform the seal check again and begin the test over. Another style, size or make of respirator may be required.

4. Using the nebulizer, spray the fit-test solution into the enclosure using the number of squeezes (10, 20 or 30) identified in the sensitivity screening. Direct the nozzle away from the respirator.

There are 7 exercises below:

Exercise 1

- After generating the aerosol, ask the participant to breathe normally for at least 30 seconds.
- After 30 seconds, spray half the number of squeezes originally recorded.

Exercise 2

- Ask the participant to take deep, regular breaths for at least 30 seconds.
- After 30 seconds, spray half the number of squeezes originally recorded.

Exercise 3

- Ask the participant to turn their head from side to side and inhale and exhale when the head is at either side for at least 30 seconds.
- After 30 seconds, spray half the number of squeezes originally recorded.

Exercise 4

- Ask the participant to nod their head up and down and inhale when the head is up and exhale when the head is down for at least 30 seconds.
- After 30 seconds, spray half the number of squeezes originally recorded.

Exercise 5

- Ask the participant to talk aloud and slowly - about their work or reading the Rainbow Passage - for at least 30 seconds.
- After 30 seconds, spray half the number of squeezes originally recorded.

Exercise 6

- Ask the participant to bend over repeatedly if space permits - for at least 30 seconds.
- After 30 seconds, spray half the number of squeezes originally recorded.

Exercise 7

- Ask the participant to breathe normally for at least 30 seconds.
- Check the nebulizer to ensure it is not clogged. If clogging is found, the test is invalid and should be repeated.

Note: If, after all of the exercises, the participant has not detected the test agent, the fit test has passed.

Final Steps:

- Before removing the enclosure, ask the participant to lift their respirator and detect the test agent. Detecting it will give the participant confidence in the test and their respiratory protection.
- Ask the participant to remove the enclosure and their respirator.
- Accompany participant to the waiting area.
- Complete the documentation required.
- Disinfect the outer surface of the nebulizer, dispose the solutions and rinse the nebulizer with water, shake to dry and refill at least each morning and afternoon, or every four hours according to the fit test kit user instructions. Clean the nebulizer, disinfect the enclosure/hood (in between each fit test and after the fit testing session) and return equipment to the box at the end of the fit testing session.

***Please see Appendix K for Quick Instructions for Fit Testing.**

Rainbow Passage:

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colours. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

Relevant Publications, Additional Resources and Appendices

Relevant Publications

Public Services Health & Safety Association - Respiratory Protection Programs: Development and Implementation for the Prevention of Occupational Infections in Health and Community Care Workplaces: Resources Manual, 2003

Canadian Standards Association (CSA) Standard Z94.4-18 - Selection, Use and Care of Respirators

Public Health Agency of Canada - Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care, 1999

Public Health Agency of Canada - Infection Control Guidelines - Prevention and Control of Occupational Infections in Health Care, 2002

Centers for Disease Control (CDC) Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health Care Facilities, 1994

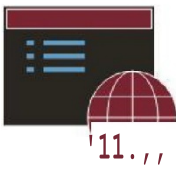
CDC-NIOSH, Protect Yourself Against Tuberculosis - A Respiratory Protection Guide for Health Care Workers, December 1995

CDC-NIOSH, TB Respiratory Protection Program in Health Care Facilities - Administrator's Guide, September 1999

US Department of Labor, OSHA Respiratory Protection Regulations - 1910.134

US Department of Labor, OSHA Fit Testing Procedures (Mandatory) - 1910.134 Appendix A

ANSI Standard Z88.10 - 2010 - Respirator Fit Test Methods



Additional Resources

Canadian Centre for Occupational Health and Safety (CCOHS)
135 Hunter Street East Hamilton, ON L8N 1M5
Tel. 905-572-2981
Fax 905-572-2206
Web Site: www.ccohs.ca

Public Services Health & Safety Association (PSHSA)
4950 Yonge Street, Suite 1800
Toronto, ON M2N 6KI
Tel. 416-250-2131
Toll Free 1-877-250-7444
Fax 416- 250-7484
Web Site: www.pshsa.ca

Occupational Health Clinics for Ontario Workers Inc.
Provincial Office
15 Gervais Drive, Suite 601
Toronto, ON M3C 1Y8
Tel. 416-510-8713
Toll Free 1-877-817-0336
Fax 416-443-9132
Web Site: https://www.ohcow.on.ca/

Ontario Ministry of Labour (MOL)
Occupational Health and Safety Branch
505 University Avenue, 19th Floor
Toronto, ON M7A 1T7
Toll Free 1-877-202-0008
Fax: 416-326-7761
Web Site: https://www.ontario.ca/page/ministry-labour-training-skills-development

Workplace Safety and Insurance Board (WSIB)
200 Front Street West
Toronto, ON M5V 3JI
Tel. 416-344-1000
Toll Free 1-800-387-0750
Web Site: www.wsib.on.ca

Appendix A: Excerpts from the OHSA Related to Respiratory Protection

Occupational Health and Safety Act

The Act outlines duties and responsibilities of employers, supervisors and workers.

Section 25 (1) Duties of employers - An employer shall ensure that:

(a) the equipment, materials and protective devices as prescribed are provided;

(b) the equipment, materials and protective devices provided by the employer are maintained in good condition;

(c) the measures and procedures prescribed are carried out in the workplace; and

(d) the equipment, materials and protective devices provided by the employer are used as prescribed ...

Section 25 (2) - Without limiting the strict duty imposed by subsection **(1)** an employer shall:

(a) provide information, instruction and supervision to a worker to protect the health or safety of the worker;

(d) acquaint a worker or a person in authority over a worker with any hazard in the work and in the handling, storage, use, disposal and transport of any article device, equipment or a biological, chemical or physical agent; and

(h) take every precaution reasonable in the circumstances for the protection of a worker.

Section 27 (1) Duties of a supervisor - A supervisor shall ensure that a worker,

(a) works in the manner and with the protective devices, measures and procedures required by this Act and the regulations; and

(b) uses or wears the equipment, protective devices or clothing that the worker's employer requires to be used or worn;

Section 27 (2) Additional duties of supervisor - Without limiting the duty imposed by subsection **(1),** a supervisor shall,

(a) advise a worker of the existence of any potential or actual danger to the health and safety of the worker of which the supervisor is aware;

(b) where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for protection of the worker; and

(c) take every precaution reasonable in the circumstances for the protection of a worker.

Section 28 (1) Duties of workers - A worker shall,

(a) work in compliance with the provisions of this act and the regulations;

(b) use or wear the equipment, protective devices or clothing that the worker's employer requires to be used or worn;

(c) report to his or her employer or supervisor the absence of or defect in any equipment or protective device of which the worker is aware and which may endanger himself, herself, or another worker; and

(d) report to his or her employer or supervisor any contravention of this act or the regulations or the existence of any hazard of which he or she knows.

Section 28 (2) Idem - No worker shall,

(a) remove or make ineffective any protective device required by the regulations or by his or her employer, without providing an adequate temporary protective device and when the need for removing or making ineffective the protective device has ceased, the protective device shall be replaced immediately; and

(b) use or operate any equipment, machine, device or thing or work in a manner that may endanger himself, herself or any other worker ...

Appendix B: Supervisor Health Clearance Request Form for Respirator Use

Employers should amend this sample form to meet the specific needs of their facility and workforce. Supervisors can use this form to collect workplace task specific information related to respirator use. The form should also be provided to the person conducting the health assessment.

Employee:
Department:
Job:
Phone:
Describe the work or assignment for which respiratory protection will be used: What hazardous material will respiratory protection be used for:
Type of respirator to be used:
Extent of use: ☐ Full shift (daily) ☐ Task dependent (occasionally) ☐ Rarely ☐ Emergency use only
Length of time respiratory protection will be required (hours per day):_____
Will there be elevated temperatures? ☐ YES ☐ NO
Signature of Supervisor: _____ **Date: _____** (dd/mm/yy)

Appendix C: Generic Health Screening Form

This is a sample health assessment tool that is sufficient for all types of respiratory protection. It can be completed by a health care professional (registered nurse, physician trained in occupational medicine, family physician or nurse practitioner) or by the respirator wearer him/herself and reviewed by a health care professional. Employers should amend this sample form to meet the specific needs of their facility and workforce. Organizations must develop procedures for who completes the form, who reviews the results, what criteria will lead to further evaluation and how personal health information will be kept confidential. This form includes confidential health information that should not be disclosed to the employer. The *Report of Health Assessment for Respirator Use*, Appendix G in this document, should be used to communicate results to an employer.

Name:
Department:
Job:
Phone:
Have you worn a respirator before? ☐ YES ☐ NO If yes, please describe any difficulties you had while using the respirator:
Will you be wearing eyeglasses or personal protective equipment with the respirator? ☐ YES ☐ NO If yes, please describe:

Have you had or do you currently have any of the following:

• Lung disease	☐ YES	☐ NO
• Persistent cough	☐ YES	☐ NO
• Heart trouble	☐ YES	☐ NO
• Shortness of breath	☐ YES	☐ NO
• History of fainting/seizures	☐ YES	☐ NO
• High blood pressure	☐ YES	☐ NO
• Diabetes	☐ YES	☐ NO
• Feelings of claustrophobia	☐ YES	☐ NO
• Skin problems that affect the head or face	☐ YES	☐ NO
• Heat exhaustion/stroke	☐ YES	☐ NO
• Defective vision	☐ YES	☐ NO
• Defective hearing	☐ YES	☐ NO
• Asthma	☐ YES	☐ NO
• Anemia	☐ YES	☐ NO
	☐ YES	☐ NO

• Epilepsy	☐ YES	☐ NO
• Back problems	☐ YES	☐ NO
• Are you now, or do you suspect you may be pregnant?	☐ YES	☐ NO
• Any other conditions that might affect respirator use?	☐ YES	☐ NO

Please explain all YES responses.

Please describe in detail any food, medication, environmental or other allergies you may have.

Are you currently taking any medications?

☐ YES ☐

NO If yes,

please list:

Do you smoke now, or have you ever smoked?

☐ YES ☐ NO

Please describe your smoking habit (years, amount smoked):

Signature of health care professional:

_____

DATE: _ _____
(dd/mm/yy)

Signature of employee:

_____

DATE: _____
(dd/mm/yy)

Referral for further medical evaluation required?

☐ YES ☐ NO

Appendix D: Disposable Particulate Respirator Health Screening Form

This is a sample health assessment tool for disposable particulate respirators (such as an N95 respirator). It can be completed by a health care professional (registered nurse, physician trained in occupational medicine, family physician or nurse practitioner) or by the respirator wearer him/herself and reviewed by a health care professional. Employers should amend this sample form to meet the specific needs of their facility and workforce. Organizations must develop procedures for who completes the tool, who reviews the results, what criteria will lead to further evaluation and how personal health information will be kept confidential. This form includes confidential health information that should not be disclosed to the employer. Where a medical assessment is required the *Report of Health Assessment for Respirator Use*, Appendix G in this document, should be used to communicate results to an employer.

Name:
Department:
Job:
Phone:
Have you worn a respirator before? ☐ YES ☐ NO If yes, please describe any difficulties you had while using the respirator:
Will you be wearing eyeglasses or personal protective equipment with the respirator? ☐ YES ☐ NO If yes, please describe:
Is there any reason you cannot wear a tight-fitting respirator that seals directly to the skin on your face? ☐ YES ☐ NO If yes, please describe:
Have you had or do you currently have any of the following: • Lung disease or breathing problems including asthma ☐ YES ☐ NO • Heart trouble ☐ YES ☐ NO • High blood pressure ☐ YES ☐ NO

• Diabetes	☐ YES	☐ NO
• Epilepsy, fainting or seizures	☐ YES	☐ NO
• Trouble tasting	☐ YES	☐ NO

Please explain all YES responses.

Please describe in detail any food, medication, environmental or other allergies you may have.

Assessment of Health Care Professional:

The worker is cleared for respirator use as assessed: ☐ YES ☐ NO

The worker is to be referred for further medical assessment: ☐ YES ☐ NO

Signing this form authorizes consent to share information with the employer via the *Report of Health Assessment for Respirator Use* form regarding clearance.

_____
Name of health care professional

Signature of health care professional: **Signature of employee:**

_____ **_____**

DATE: _____ **DATE: _____**
(dd/mm/yy) (dd/mm/yy)

Appendix E: CSA Respirator User Screening Form

This sample health-screening tool is reprinted with permission from the Canadian Standards Association's *Standard for Selection, Use and Care of Respirators, CSA Z94.4-18.* The CSA tool is intended for the initial and periodic screening of respirator users in conjunction with *CSA Standard Z94.4, Clause 12.*

Figure E.t
Sample respirator user screening form
[See Clauses 8.1.3, 12.1, 12.4, and E.1.)

RESPIRATOR USER SCREENING FORM

for initial and periodic screening of respirator users in conjunction with CSA Z94-4,Clause 12

PART 1: EMPLOYER INFORMATION

Employer name: Employer#:

Date:

Worksite address: Supervisor name: Email:

Telephone: ( ) Facsimile: ( )

PART 2: RESPIRATOR USER INFORMATION

Name: Employee#: Email:

Title/Occupation Telephone: ( ) Facsimile: ( )

PART 3: CONDITIONS OF USE

ACTIVITIES requiring respirator use:

FREQUENCY of respirator use:	☐ Daily	☐ Weekly	D Monthly	☐ Yearly	☐ Other
EXERTION level during use:	☐ Light	☐ Moderate	☐ Heavy	☐ Other	
DURATION of respirator use per shift:	☐ < 1/4 h	☐ >1/4h	☐ >2 h	☐ Variable	☐ Other
TEMPERATURE during use:	☐ <O° C	☐ > 0 and< 25° C	☐ >25° C		
ATMOSPHERIC PRESSURE during use:	☐ Reduced	☐ Normal/ambient	☐ Increased		

SPECIAL WORK CONSIDERATIONS

Uncontrolled hostile environment:

☐ Atmospheres immediately dangerous to life ☐ Firefighting ☐ Riot/Police activity ☐ Rescue operations

☐ Hazardous materials (emergency) ☐ Oxygen deficiency ☐ Confined spaces

☐ Other _____

Other personal protective equipment:

☐ Additional types of personal protective equipment required (specify):_____

☐ Estimated total weight of tools/equipment carried during respirator use: Maximum: _____ Average : _____

PART 4: TYPES OF RESPIRATORS USED (check all that apply)

☐ Tight-fitting ☐ Non-tight fitting (e.g., hood) ☐ SCBA - open-circuit ☐ Mouth bit

☐ SCBA - closed-circuit ☐ Air-purifying, none-powered ☐ Airline, continuous-flow ☐ SCBA - escape

☐ Air-purifying, powered ☐ Airline, pressure-demand ☐ SCBA - closed-circuit escape

☐ Multi-functional pressure-demand/ Airline with escape ☐ Supplied air suit

☐ Combined airline with air-purifying elements ☐ Other {specify):_____

(Continued)

Figure E.1 (Concluded)

PART 5: RESPIRATOR USER'S HEALTH CONDITIONS

Check Yes or No box only. DO NOT specify

Note: *Medical information is NOT to be offered on this form.*

a) Some conditions can seriously affect your ability to safely use a respirator. Do you have or do you experience any of the following or any other condition thc1t could affect respirator use? ☐ Yes ☐ No

Shortness of breath	Breathing difficulties	Chronic bronchitis	Emphysema
Lung disease	Chest pain on exertion	Heart problems	Allergies
Hypertension	Cardiovascular disease	Thyroid problems	Diabetes
Neuromuscular disease	Fainting spells	Dizziness/Nausea	Seizures
Temperature susceptibility	Claustrophobia/Fear of heights	Hearing impairment	Pacemaker
Panic attacks	Colour blindness	Asthma	
Vision impairment	Reduced sense of smell	Reduced sense of taste	
Back/Neck problems	Unusual facial features/skin conditions	Dentures	
Other condition(s) affecting respirator use		Prescription medication to control a condition	

b) Have you had previous difficulty while using a respirator·?	☐ Yes	☐ No
c) Do you have any concerns about your future ability to use a respirator safely?	☐ Yes	☐ No
d) Have you ever had a severe adverse health reaction or condition while undergoing a fit testing process?	☐ Yes	☐ No

A "YES" answer to a), b), or c) indicates further assessment by a health care professional is required prior to respirator use.

Signature of respirator user: _____ Supervisor's initials _____

Date:

PART 6: HEALTH CARE PRFESSIONAL PRIMARY ASSESSMENT (if required)

Assessment date: _____

Respirator use permitted:	☐ Yes	☐ No	☐ Uncertain
Referred to medical assessment:	☐ Yes	☐ No	

Comments: _____

Reassessment date: _____

Name of health care professional (HCP) Title: _____ Signature of HCP: _____

PART 7: MEDICAL ASSESSMENT (if required)

Assessment date:

☐ Class 1. No restrictions

☐ Class 2. Some specific restrictions apply (specify): _____

☐ Class 3. Respirator use is NOT permitted.

Name of physician: Signature of physician:

Appendix F: Disposable Particulate Respirators Health Screening (non-disclosure) Form

This is a sample health screening tool for disposable particulate respirators. This form can be used when

Confidential health information should NOT be disclosed. Based on the information on this form, one can determine if further health assessment or medical evaluation is required. Employers should amend this sample form to meet the specific needs of their organization and workforce. Results can be reported on the *Report of Health Assessment for Respirator Use* found in Appendix G.

Name:
Department:
Job:
Phone:
Have you worn an N95 respirator before? If yes, please describe any difficulties you had while using the respirator:
Will you be wearing eyeglasses or personal protective equipment with the respirator?If yes, please describe:
Is there any reason you cannot wear a tight-fitting respirator that seals directly to the skin on your face?(e.g. skin conditions)
Do you have a latex allergy, latex sensitivity, allergy to artificial sweetener or any other allergy that youfeel may be of concern?
A "yes" response listed in sections "A", "B" or "C" below will require further assessment by a health professional.
A) Have you had or do you currently have any of the following: ☐ YES ☐ NO • Lung or breathing problems, including asthma • Trouble tasting • Diabetes • History of epilepsy, fainting or seizures • High blood pressure • Heart problems or history of heart pain

B) Have you had previous difficulty while using a respirator? ☐ YES ☐ NO

C) Do you have any concerns about your future ability to use a respirator safely? ☐ YES ☐ NO

Signature of Employee: _____

DATE: _____
dd/mm/yy

Additional Comments:

Referral for further medical evaluation required? ☐ YES ☐ NO

Name of Reviewer _____

Signature of Reviewer
(supervisor, respirator administrator, etc.)_____

DATE: _____
dd/mm/yy

Appendix G: Report of Health Assessment for Respirator Use

This form can be used to communicate the results of a health assessment completed by a health professional for respirator use to an employer. Employers should amend this sample form to meet the specific needs of their organization and workforce. Organizations must develop policies and procedures that give direction about how the report form is to be used, who completes the tool and who reviews the results.

Name:
Department:
Job:
Phone:
Type of Respirator:
Please check one of the following: This employee: ___May wear the above noted respirator ___May not wear the above noted respirator ___May wear the above noted respirator with restrictions (please see below)The restrictions for respirator use by this employee are:
Health Care Professional: Name:_____ Signature:_____ Address:_____ Phone Number:____ Date:_____ dd/mm/yy

Appendix H: Sample Fit-Testing Record Form

Employee Information							
Name:							
Department:							
Telephone:							
Clean Shaven: ☐Yes ☐No				Other PPE:			
Glasses: ☐Yes ☐No				Compatibility: ☐Yes ☐No			
Contact Lenses: ☐Yes ☐No							
Respirator Information							
Type of Respirator:							
Manufacturer/Model:							
Size: ☐Large ☐Medium ☐Small ☐Other							
Preparation for Fit Testing							
Employee competent in respirator use: ☐Yes ☐No							
Comfort Assessment Score:	0	1	2	3			
Qualitative Respirator Fit Test							
Test Agent Used:	Bitrex	Saccharine	Sensitivity	10	20	30	ND
☐Pass ☐Fail Notes:							
Quantitative Respirator Fit Test							
Equipment Used: (Please attach documentation of maintenance, calibration and repair of equipment used)							
☐Pass ☐Fail Notes:							
Acceptable Comfort Question: ☐Yes ☐No							
Fit Tester:							
Company:							
Date (dd/mm/yy):							
Next fit test due date (dd/mm/yy):							

This form allows for documentation of pertinent information while assessing comfort and fit. Employers should amend this sample form to meet the specific needs of their organization and workforce. CSA provides a more comprehensive version of this form.

Appendix I: Respirator Training Record

This sample training record can be used to document that workers have completed training on their applicable respirator. Employers should amend this form to meet the specific needs of their organization and workforce.

I hereby certify that I have been trained in the proper use and limitations of the respirator issued to me. The training included the following: 1. Instruction on donning, fitting, testing, wearing and removing the respirator 2. Instruction on inspection, cleaning and maintaining the respirator 3. Explanation of dangers related to misuse 4. Instructions on emergency situations I further certify that I understand the use, care and inspection of the respirator and have tested and worn the unit.
Name:
Signature:
Date (dd/mm/yy):
Department:
Respirator Type Used:
Trainer:

Appendix J: Fit Test Schedule and Recording Form

DATE (dd/mm/yy): _____

FACILITY/ORGANIZATION:_____ NAME OF FIT TESTER: _____

Name	Comfort Score (0, 1, 2, 3)	Sensitivity Agent – Record as: B - Bitrex© or S - Saccharin	Sensitivity Threshold – Record as 10, 20, 30, ND	Respirator Type/ Model	Respirator Size (S, M, L, Other)	Pass/ Fail	Acceptable Comfort (Y/N)	Additional Comments

Appendix K: Quick Instructions for Fit Testing

Remember to:

- Ensure that each fit-test participant has filled out their health screening form
- Ensure that each fit-test participant has not eaten, drunk, smoked or chewed gum 15 minutes prior to the fit test
- Explain the fit-test procedure to the participant
- Remind the participant that this is a taste test and that they must breathe through their mouth throughout the entire test
- Ensure that the individual has on all of their PPE at the time of the fit test
- Change the fit-test and sensitivity screening solutions every four hours

Respirator selection

1. Assist the participant to choose a respirator
2. Instruct the participant on how to don and doff the respirator
3. Instruct the participant on the steps of positive and negative seal checks
4. Instruct the participant on how to inspect the respirator before each use
5. Verify and document participant's competency
6. Verify and document participant's comfort (observations, movements, scoring)

Sensitivity Screening

1. Have the participant place the hood over the head without the respirator on
2. Instruct the individual to breathe through their mouth
3. Squeeze up to 10 squirts of the sensitivity solution into the hood
4. If the individual can taste the solution, indicate that the sensitivity threshold is 10
5. If the individual is unable to taste the sensitivity solution after 10 squirts, squeeze another 10 squirts
6. If the participant detects the solution, mark 20 as the sensitivity threshold
7. If there is no detection, squeeze another 10 squirts
8. If the participant detects the solution, mark 30 as the sensitivity threshold
9. If there is no detection of the solution, the fit test cannot proceed

Fit Testing

1. Have the participant don the respirator and perform both seal checks
2. Have the participant place the hood over their head and remind them to breathe through their mouth for the entire fit test
3. Use the fit testing solution and squeeze the number of squirts that had been recorded for the sensitivity threshold (10, 20 or 30) in the sensitivity screening
4. Have the participant perform the following seven exercises for at least 30 seconds:
    - Breathe normally
    - Deep breathing
    - Turning head side to side
    - Nodding head up and down
    - Talking or reading out loud
    - Bend over repeatedly, if space permits
    - Normal breathing
5. Every 30 seconds during the test, replenish the fit-testing solution within the hood by squeezing half the number of squirts that was used for the sensitivity threshold
   (5, 10 or 15)
6. If the participant can taste the solution at any time during the fit test, the fit test has failed and the individual should be tested on another style
7. If they are unable throughout the test to taste the solution, have the participant reach under the hood and pull the respirator away from their chin to see if they can still taste the solution
8. Have the participant remove their respirator slowly and carefully and place it in the garbage
9. If the participant passed the fit test, provide them with a fit-testing card with the make, model and size of their respirator and the date of their next fit test

Appendix L: Fit Testing Tip Sheet

Fit testing should be carried out whenever there is a change in facepiece, change in the user's physical condition and with other personal protective equipment (PPE) to be worn in the workplace.

Fit testing must be done after the employer has conducted a health assessment and before they are required to wear the respirator at work. Results of the health assessment must be provided in writing and kept in a confidential location.

- Ensure that individuals to be fit tested are free from interference of hair where the respirator seals to the skin of the face or neck. Although the rate of hair growth may require being clean-shaven within the previous 24 or preferably 12 h to ensure that hair neither infringes on the sealing surface of the respirator nor interferes with valve or respirator function. A "clean-shaven" policy is best implemented through emphasis on its importance during training, through regular reminders, and ongoing verification of conformance.

- Ensure that individuals to be fit tested are free of personal accessories such as head coverings, garments, facial jewellery or other items that shall not come between the skin and the sealing surface of the respirator. Such accessories can impair respirator effectiveness by interfering with valve function, respirator adjustability, and proper secure positioning. Makeup, creams, or lotions can also interfere with effective respirator function.

When PPE such as eye, face, head, or hearing protectors or protective garments are required to be worn during respirator use, they shall be worn during respirator fit testing to ensure that the respirator seal is not compromised.

Ensure that participants:

- have filled out your health surveillance form
- have not eaten, smoked, chewed gum or drank (exception plain water) within the last 15 minutes
- do not have any known allergies to Bitrex© (denatonium benzoate) or artificial sweeteners such as Saccharin
- bring all PPE they will be wearing with respirator (e.g., eye protection, face shield, helmet, hearing protection) during the fit testing procedure

Each manufacturer has specific instructions for use and care of respirators. Review the instructions for doffing and donning the respirator. Provide care according to manufacturer's guidelines.

Clean the nebulizer at the end of each session. Discard the unused solution from the nebulizers at least every four hours. **DO NOT** pour the unused solution back into the bottles. Rinse the nebulizers with warm water to prevent clogging; dry thoroughly.

When using the nebulizer ensure both plugs on the nebulizer are removed and hold the nebulizer in the upright position to allow for aerosol generation. When preparing to inject the aerosol into the hood, remember, during the injection process, you must squeeze the bulb firmly so that **it** collapses completely, then release and allow it to fully expand.

Use an approved disinfectant to wipe out the inside of the shield between each participant.

Have a variety of models and sizes of respirators available in order to accommodate a variety of users.

Ensure that fit testing is carried out in an area where there is a supply of potable drinking water for participants including a supply of clean cups. Conduct fit testing in a well-ventilated area. If possible, conduct sensitivity screening in a different room/area from the fit testing procedure.

Some individuals may have severe allergic reactions to fit testing solutions. Therefore, it is important to have a plan in place to deal with allergic reactions and medical emergencies.

Refresher Training:

The CSA standard does not dictate a frequency for refresher training. It indicates that additional training is required when:

- a review cannot confirm the individual remains qualified
- the program administrator says additional training is required
- a review indicates additional training is needed to meet the required level of competency.

Fit testing should also be required when there is a change in the following:

- significant weight gain or loss (a 10% gain or loss is considered significant)
- dental changes
- facial scarring
- cosmetic surgery

Public Services Health & Safety Association™

Your Health. Your Safety. Our Commitment.

Train the Fit Tester for Respiratory Protection Distance Learning

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@PSHSAca

Product Code: IREPWAEN0420