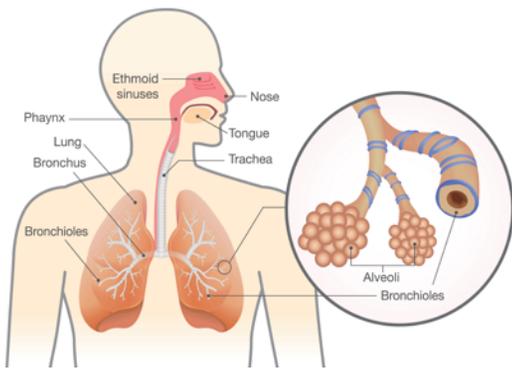


Respiratory Protection*



The respiratory system consists of organs and structures that allow us to breathe by taking in oxygen and expelling carbon dioxide. Particulate, gas, and vapour contaminations can harm the respiratory system. Sometime, the effects of these contaminants can create an acute injury (immediately within 24 to 48 hours of exposure) or chronic injuries (develop slowly after exposure e.g., weeks, months, years).

Particulates are microscopic particles of solid or liquid matter suspended in the air. Depending on the size of the particulates, they will go further into your respiratory system.



Why is it important?

WorkSafeBC receives approximately 872 claims each year for respiratory related occupational diseases and respiratory irritations. These include exposure to paint fumes, smoke inhalation, legionnaires disease (lung infection caused by legionella bacteria), covid, chronic sinusitis caused by prolonged exposure to irritants, asthma, exposure to asbestos (lung disease) and cancer.

Associated risks/hazards

Particulate contaminants come in many forms:

- Dust and fibres (small solid particles)
- Mist (small liquid drops)
- Fumes (tiny solid particles)
- Biological contaminants

Gases such as propane, carbon dioxide, helium and vapours are another respiratory hazard. Depending on the particulate contaminant, these items can irritate your eyes, nose, throat, lungs, and skin and can be easily absorbed through your lungs into your bloodstream.

The air we breathe contains several different gases. Almost 21% of normal air is oxygen. Where there is less than 19.5% oxygen by volume, the atmosphere is considered an oxygen deficient atmosphere. Lack of oxygen can damage your brain and cause your heart to stop after a few minutes.

Preventive next steps

Find the tasks, products, processes, that can lead to respiratory issues or injury through your inspection process and hazard identification process.

For example, locate all sites that meet the definition of a “confined space” as per Occupational Health and Safety Regulation (OHSR) 9.2, since confined spaces can hold gases, vapour, or oxygen deficient atmospheres. Then, perform a hazard assessment as per OHSR 9.9 & 9.11.

If your workplace has hazardous product, you will need to do the following:

- Provide WHMIS training and education to all staff
- Have the Safety Data Sheet (SDS) for all hazardous products in your workplace
- Review the SDS before using any hazardous product
- Depending on what the SDS states for the exposure limit to the hazardous product, select the appropriate personal protective equipment (PPE).

Respirators must be selected in consultation with the Joint Health and Safety Committee or Worker Health and Safety Representative, per the CSA standard Z94.4, see OHSR 8.33. A respirator must be provided at no cost to the worker. Workers must be trained on how to use a respirator and they must be fit-tested as per OHSR 8.40.



For additional resources visit:

[Occupational Health and Safety Regulation 8.32](#) When respirators are needed

[Breathe Safer: How to use respirators safely and start a respirator program](#) WorkSafeBC

[How do particulates enter the respiratory system](#) CCOHS

