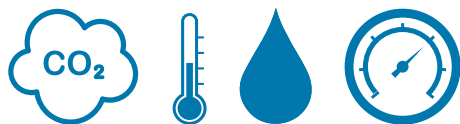


Carbon Dioxide (CO₂) Monitor Loaning Program for Indoor Air Quality

WHAT DO CO₂ MONITORS MEASURE?

CO₂ monitors can help to assess ventilation by providing real-time measurements of CO₂ in the air. Some devices also log data, and may provide other measurements such as temperature and humidity.



WHAT ARE THE BENEFITS OF MONITORING CO₂?

Most people spend the majority of their time indoors, including home, school, and work. In an indoor setting, it is natural to find CO₂ in the air, and at low levels it is not a health concern.

However, when indoor CO₂ increases to a very high level, people may be at an increased risk of impacts including:

- Fatigue
- Headache
- Eye irritation
- Sore or dry throat
- Difficulty concentrating
- Dizziness
- Stuffy or congested nose

CO₂ levels also help us understand how well-ventilated a space is.

Poorly ventilated spaces, without enough fresh outside air moving in, can allow for indoor air pollutants (such as CO₂, volatile organic compounds, mould, and smoke) to build up and potentially impact health.

HOW DO I INSTALL THE MONITOR, AND WHERE SHOULD I PLACE IT?

Place the monitor at a height of about 1-2 metres (3-6 feet), away from windows and air supply vents, and if possible at least about 2 metres (6 feet) away from people, fuel-burning appliances, and open flames. You may choose to monitor for several days to learn about patterns in your space, and some devices have apps to support this.

WHERE DOES INDOOR CO₂ COME FROM?

When we breathe out, we release CO₂ into the air. Other sources of CO₂ found indoors can include cigarette smoke and fuel-burning appliances.



CO₂ is odourless, colourless, and non-flammable. The best way to know how much CO₂ is in the air is by measuring it with a monitoring device.

Crowded and inadequately ventilated spaces are more likely to have high CO₂ levels.

HOW DO I INTERPRET INDOOR CO₂ LEVELS?



While CO₂ monitors do not directly measure the risk of infectious disease transmission in a space, good ventilation can reduce the risk of infections transmitted through the air.

Health Canada has set **1000 parts per million (ppm)** as a long-term exposure limit in indoor settings, based on a 24-hour average.¹ It is normal and expected to see changes in CO₂ levels throughout the day. **Ideally, indoor CO₂ levels should be below 1000 ppm, and as close to outdoor levels as feasible.** Severe acute health effects are not expected at CO₂ levels below 5000 ppm. Health effects of CO₂ exposure are generally reversible with improved ventilation or moving to fresh air.

Since the loaned monitor provides real-time measurements as well as the ability to record CO₂ levels over time, **we recommend using the monitor consistently for a period of time (e.g. 7 days) to determine trends and causes for CO₂ level changes, and take action where necessary and possible to improve ventilation.** For example, if you see that CO₂ levels increase when many people are in the room, this may suggest the option to open windows or doors to increase ventilation.

HOW CAN I IMPROVE VENTILATION AND AIR QUALITY IN A SPACE?

Generally, indoor air quality can be improved by:

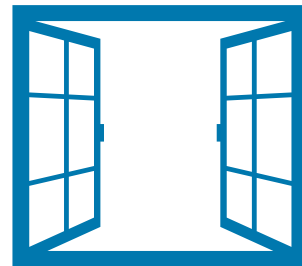
- Controlling and eliminating sources of air pollutants
- Ensuring good ventilation
- Cleaning the air (typically by filtering)

If your monitor is showing high levels of CO₂, consider taking steps to increase ventilation or control the sources of contaminants.

Consider the following actions:

- Open windows or doors. Increase the amount of outdoor air being drawn in
- Maintain, repair, and/or upgrade your Heating, Ventilation and Air-Conditioning (HVAC) system
- Use portable HEPA filters, which can reduce indoor air contaminants including smoke and aerosols containing bacteria or viruses
- Not smoking indoors
- Use a range hood exhaust fan with outside venting when cooking with gas appliances

It is also important to consider outdoor air quality and reduce entry of outdoor air pollutants when necessary. This is especially crucial during wildfire smoke events.



1. Health Canada (2021, March 19). Government of Canada. Canada.ca. <https://www.canada.ca/en/health-canada/services/publications/healthy-living/carbon-dioxide-home.html>



Questions? Contact us at Healthy.Environments@vch.ca