

CO2 Monitoring and COVID-19 – Some Basics

Why is CO2 monitoring relevant for controlling COVID-19?

- Both COVID-19 and CO2 are contained in the air which people exhale when they breathe out.
- COVID-19 can carry further than 2m in the exhaled air, although the risk reduces with distance.
- Ventilation can disperse infected air, therefore reducing the risk of exposure to Covid-19. Ventilation will often also disperse CO2.
- If nothing else affects CO2 levels, then measuring the CO2 levels can indicate how well the ventilation is working and therefore reducing COVID-19 in the air.
- You can buy a CO2 monitor and if you use it properly, it can help you understand whether the ventilation is adequate or needs improving.
- Non-dispersive infrared (NDIR) CO2 monitors are the ones to go for. These are relatively cheap to purchase.

When does it work well and when does it not work so well?

- You are trying to measure CO2 levels from human breath, so you need to test while the space has its normal users in it, doing their normal activities.
- If you have invested in air-cleaning devices such as High Efficiency Particulate Air (HEPA) or UV, this may be reducing your risk of COVID-19 transmission, but it does not reduce CO2 levels, so you might get an overestimation of risk.
- If you have a process that produces or reduces CO2 in the space, such as baking, brewing, or dispensing CO2 drinks, this will affect readings.
- Like most things, you need to use monitors properly. If they are put in the wrong place or readings are taken at the wrong time, your results won't have any value.

What's a safe CO2 level?

- CO2 monitors are not measuring COVID-19, they are indicating how effective your ventilation is, so even when used perfectly, the readings are rough indicators.
- CO2 levels will vary according to what people are doing and other factors.
- A perfectly healthy person breathes out CO2, so you could have a lot of CO2 and no COVID-19 being spread. But if everyone in the space is infected, there could be a high risk, even if the CO2 reading is low.
- Levels of CO2 of 800ppm or below are indicators that the ventilation is doing OK, above that level, and your ventilation is not doing so well, and you need another plan.

How do I do the monitoring?

HSE has provided really good guidance on how to use CO2 monitors to identify poorly ventilated areas, but you also need to read the operating instructions on the unit you buy. [Identifying poorly ventilated areas and using CO2 monitors \(hse.gov.uk\)](https://www.hse.gov.uk/ventilation/co2-monitors/)