

Testing the indoor air quality with C.A 1510 for COVID-19 prevention.



Quality of ambient air and risk of infection

Numerous scientific studies have proven that aerosols are a major route of transmission of viruses such as **COVID-19** and **SARS-CoV-2**. Active virus particles can float in the air longer and further than originally thought and pose a potential danger.



Problem definition:

- Is compliance with the indoor distance rules sufficient?
- Which measures are recommended?
- Which measuring devices are available to help identify and reduce the risk of infection?



Schools - Offices - Hospitals - Factories - Public transport



Although many questions about the possible transmission of the Virus SARS-CoV-2 remain unresolved, aerosols were recognized as one of the transmission vectors at the beginning of July.

Various scientific studies have now proven that a person infected with SARS-CoV-2 can emit numerous viral aerosols not only when sneezing and coughing, but also when speaking and even when exhaling.

While larger droplets sink quickly at a small distance from the ground, aerosols can float in the air over larger distances of up to almost 16 feet and, possibly, float in the air and distribute the virus. This was confirmed by the researchers of the University of Florida led by John Lednicky. However, it is currently unclear how large the proportion of aerosols in the infections is.

The fact that even completely asymptotically infected individuals can transmit the virus in this way is worrying.

Are the distance rules sufficient?

In enclosed spaces, the risk of infection with the COVID-19 is generally much higher than outdoors, where SARS-CoV-2 particles are dispersed by the wind and can volatilize.

In publicly accessible premises such as schools, day care centres, offices, seminar rooms, workshops, transport, hospitals, etc., the 2m distance control alone is not sufficient, according to the study mentioned above.

Importance of airing

A possible risk of infection via aerosols therefore exists predominantly in rooms which are not sufficiently ventilated or in which no air exchange is possible.



When is fresh air necessary?

In various studies, researchers have analyzed the relationship between the concentration of CO₂ and aerosols emitted during breathing.

According to Anna Hartmann and Martin Krieger of the Hermann Rietschel Institute of the Technical University of Berlin, the studies have shown that CO₂ is a good indicator of the functionality of the ventilation systems: "with a high air exchange, both low CO₂ concentrations and low aerosol concentrations can be achieved. The lower the aerosol concentration, the lower the dose of aerosols that a person in the room inhales and therefore the risk of infection."



Coronavirus is airborne and transmitted through tiny droplets called aerosols that linger in the air much longer than the larger globs that come from coughing or sneezing especially in poorly ventilated indoor areas.

The Solution: **C.A 1510**, the Indoor Air Quality Tester

Measuring the CO₂ concentration with Model 1510 is a good indicator of the efficiency of room ventilation and thus of the reduction of the risk of infection.



C.A. 1510, the optimal device for permanent monitoring of aerosol concentration in closed rooms through CO2 measurements.

As already mentioned, an increased CO2 concentration in indoor spaces indicates a strong occupancy of the room and an insufficient supply of fresh air. For this reason, the CO2 concentration is an excellent indicator of air quality and a decisive indication of the need for air renewal.

The Model 1510 portable indoor air quality meter is easy and user-friendly to use and stores the measured parameters. It determines the air quality in rooms on the basis of the CO2 concentration alone or on the basis of the three measured physical quantities (CO2, relative humidity and temperature).

Features:

- Audible and visual alert of high CO2 concentration
- Simultaneous monitoring and recording of CO2, temperature and humidity values
- Storage of up to 1 million readings
- Compact and Autonomous – for stationary and mobile measurements
- USB power adapter for continuous measurements
- Display of indoor air quality level based on CO2 content and humidity / air temperature
- On-Site Calibration Set



Correct Ventilation Ensured

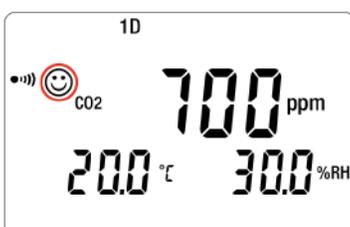
The device has an optical display (two-color display backlighting) and an audible warning when high concentrations of CO2 are present.

Example in 1D mode:

- from an average CO2 concentration of 1000 ppm, the indicator light flashes orange
- from peak values of 1700 ppm the indicator light flashes red and an acoustic signal sounds

Correct Ventilation Ensured

Thanks to the data logger function, it can be proven at any time, if necessary, that the dangerous concentration values have not been exceeded during the entire measurement period. This ensures that the premises have been properly ventilated.



GOOD



WARNING



HIGH

Flexible mounting types

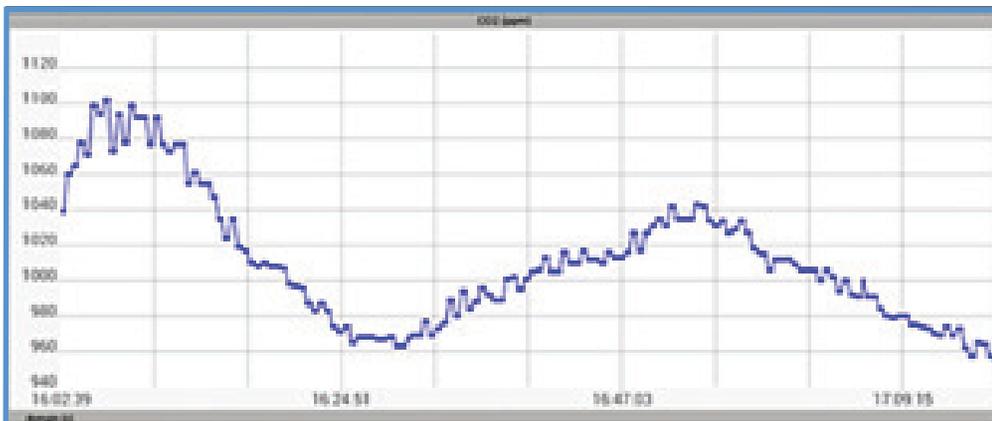
- C.A. 1510 Air quality logger is equipped with a magnet.
- It can be attached to any metal surface effortlessly.
- A lockable wall holster provides theft protection.
- A tabletop stand for easy transportation to different locations.



Communication and Protocol options

Model 1510 indoor air quality tester can be connected to a PC via USB as well as wirelessly via Bluetooth. Software can be used to program the recordings, save the measured values as graphics or in Table form, export them to Excel and create reports.

An Android™ App is also available to display the data in real time on mobile devices.



Example of long-term recording of the CO2 concentration in a closed room.

Practical tip: How to ventilate properly?

As part of its study "Covid-19 prevention: CO2 measurement and demand-oriented measurement", the environmental campus Bielefeld has determined, among other things, that the CO2 concentration in rooms can be reduced significantly faster during cross ventilation than during tilt window ventilation.

While aerosols are only slowly diluted during tilt window ventilation, a complete air exchange takes place during cross ventilation.

Cross-ventilation not only reduces the CO2 concentration more quickly, but also saves a lot of heating energy, as walls and furniture do not cool down.



Chauvin Arnoux Ltd
Unit 1 Nelson Ct, Flagship Sq, Shaw Cross Business Park
Dewsbury, West Yorkshire - WF12 7TH
Tel: +44 1924 460 494
Fax: +44 1924 455 328
info@chauvin-arnoux.co.uk