

How can I test my CO₂ levels at home?

You can accurately test your home's CO₂ levels by using a dedicated indoor air quality monitor that employs non-dispersive infrared (NDIR) sensor technology, placing it at head height away from people and draughts, and interpreting the readings in parts per million (ppm) against UK health and building ventilation guidelines.

Understanding CO₂ and Its Significance in Your Home

Let's cut through the jargon first. Carbon dioxide, or CO₂, isn't some mysterious chemical; it's a natural part of the air we breathe. Every time you exhale, you release it. In a well-ventilated space, this CO₂ dissipates, mixing with fresh outdoor air. However, in a sealed modern home with double glazing and impeccable insulation, it accumulates. Think of it like this: if you're in a stuffy meeting room and everyone starts feeling drowsy and unable to concentrate, that's not just boredom—it's quite literally the weight of the exhaled air in the room. CO₂ is the canary in the coal mine for indoor air quality. It's the most reliable proxy we have for measuring how stale your air truly is, acting as a clear indicator that other, more harmful pollutants—from volatile organic compounds (VOCs) off-gassing from your furniture to airborne viruses—are also likely building up.

The Gold Standard: Using a Dedicated CO₂ Monitor

Forget complicated chemical tests or vague assumptions. The only way to get a precise, real-time measurement is with a proper digital monitor.

Choosing the Right Device

Your first step is procurement. You need to look for a monitor that uses NDIR (non-dispersive infrared) sensor technology. This isn't just technical mumbo jumbo; it's the crucial differentiator. NDIR sensors are the industry standard for accuracy because they measure CO₂ molecules by beaming a specific wavelength of infrared light at them and seeing how much is absorbed. Avoid cheaper models that use electrochemical (eCO₂) sensors, as they are often less accurate and can be influenced by other gases. Prices can range from around £100 to over £300, often correlating with additional features like data logging, humidity and temperature sensors, and sleek displays.

Strategic Placement for Accurate Readings

Where you put the monitor is just as important as the device itself. You're not measuring the air right next to your face or by an open window; you're measuring the ambient air in the room. For the most representative data:

- Position the unit at head height, approximately 1.5 metres off the floor, as this is the level at which you breathe.
- Keep it at least 50 cm away from people, windows, doors, and air vents. A reading taken directly in your exhaled breath stream will spike to over 40,000 ppm—which is accurate for that specific spot but useless for understanding the room's overall air quality.
- Focus on occupied rooms. The most critical readings come from spaces where you spend prolonged periods: the bedroom overnight and the living room during a family evening.

Interpreting the Data: What Do the Numbers Mean?

The monitor will give you a reading in parts per million (ppm). Here's the breakdown of what those numbers signify, based on UK Health Security Agency (UKHSA) and Building Regulations guidance:

- **~400 ppm:** This is the baseline. It's the typical concentration in fresh outdoor air. It's your benchmark.
- **Below 800 ppm:** Excellent. This indicates superb ventilation. Your space has a healthy, continuous supply of fresh air. This is the ideal environment for cognitive function and overall well-being.
- **800 - 1000 ppm:** Fair. You're starting to enter the territory of diminishing returns on air quality. While not dangerous, some studies suggest a slight decline in cognitive performance can begin around 1000 ppm. It's a nudge to crack a window.
- **1000 - 1500 ppm:** Poor. The air is stale. You may notice a stuffy atmosphere, and feelings of drowsiness and poor concentration are common. This is a clear signal that your current ventilation strategy is insufficient.
- **Above 1500 ppm:** Unacceptable. Ventilation is severely inadequate. At these levels, the decline in cognitive function is significant, and the risk of headaches and lethargy increases substantially. Furthermore, this high concentration is a strong indicator that other indoor pollutants are also at elevated levels. Immediate action is required.

Beyond the Snapshot: The Importance of Continuous Monitoring

A single reading tells you a story about one moment in time. To truly understand your home's air quality narrative, you need to monitor continuously over a 24-48 hour period. This reveals patterns. Does the CO₂ level in your child's bedroom skyrocket to 2000 ppm by 3 am? That's a critical data point. Does the living room become a gas chamber during a movie night? This data is empowering. It moves you from guesswork to fact-based decisions about your health and your home's environment.

What High CO₂ Levels Truly Indicate and the VENTI Philosophy

It's vital to understand that a CO₂ monitor is not directly measuring mould spores or COVID particles. It's measuring a consequence of poor ventilation. Where there is a build-up of exhaled CO₂, there is invariably a build-up of everything else we exhale and everything that off-gasses from our homes. This is the core of the problem that VENTI was founded to solve.

We believe that simply opening a window is a flawed, twentieth-century solution for a twenty-first-century problem. It's inefficient, it's weather-dependent, and in urban areas, it can often let in polluted outdoor air and noise. Our purpose is to empower you to breathe freely with intelligent, continuous, and filtered ventilation.

The data from your CO₂ monitor is your first step toward this empowerment. If your readings are consistently high, it's not a failure; it's a diagnosis. And that diagnosis points towards a solution: a mechanical ventilation system.

- **For targeted extraction in wet rooms** like kitchens and bathrooms, a system like our **ARIA dMEV** provides continuous, low-level extraction that ramps up automatically with humidity, tackling moisture at its source without you lifting a finger.
- **For a whole-house, comprehensive solution** that retains heat, our **RESPIRO MVHR** (Mechanical Ventilation with Heat Recovery) is a game-changer. It continuously extracts stale, CO₂-rich air from wet rooms while supplying filtered fresh air to living areas and bedrooms. The magic is in the heat exchanger, which transfers warmth from the outgoing

air to the incoming air, recovering up to 90% of the heat that would otherwise be lost by opening a window. This is the ultimate solution for maintaining sub-800 ppm CO₂ levels year-round, comfortably and efficiently.

- **For refurbishment projects** where ducting is impractical, our decentralised MVHR units like **FLUXO** or **AUREN** offer a superb through-the-wall alternative with heat recovery, perfect for transforming a stuffy bedroom or home office into a fresh, oxygen-rich sanctuary.

Take control of your indoor environment today by testing your CO₂ levels; the data you gather is the first crucial step toward investing in a permanent, intelligent ventilation solution that safeguards your health and comfort.