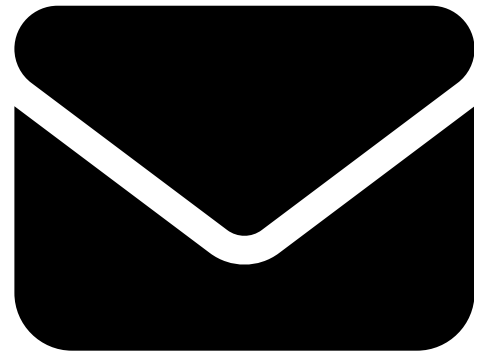


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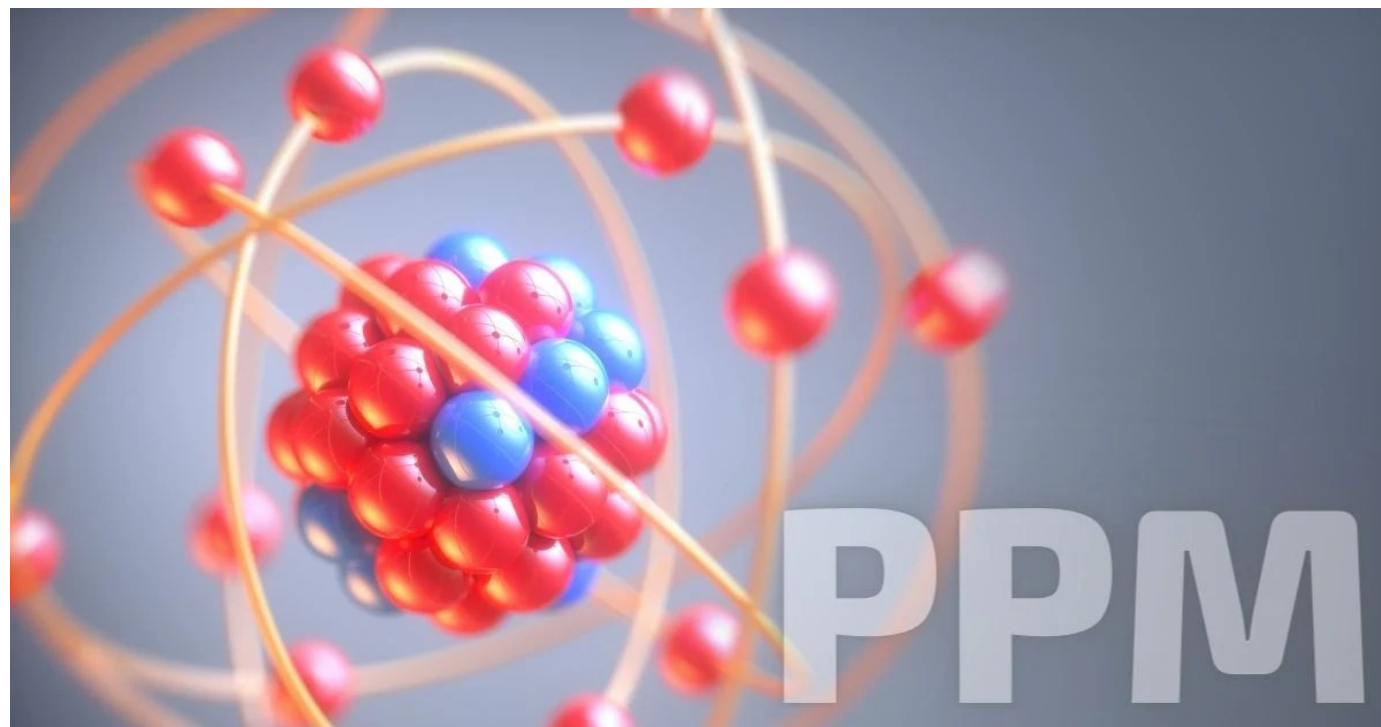


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What is CO2 ppm?

March 16, 2023



One of the main questions we get at CO2Meter is "what is ppm?." This abbreviation "ppm" can also be recognized as parts-per-million.

PPM (Parts per million) is a measure of the concentration of a substance in a solution or gas. It indicates the number of parts of a particular substance per one million parts of the total solution or gas. It's a way to express small quantities of substances in a larger mixture.

For example, one gallon of all purpose cleaner contains 100ppm of hypochlorous acid. This means there are 100 milligrams per liter of solution (100ppm = 100mg/liter), and there are 28,350 milligrams in 1 ounce.

PPM is further defined as the fractional unit of measure for gas concentrations. For example, a methane gas concentration of 2% means that 20,000 out of every 1 million molecules in methane. A methane gas concentration of 100ppm means that 100 out of every 1 million air molecules is methane.



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What does ppm mean?

In air quality ppm is the number of molecules of CO₂ per million air molecules. Because indoor air quality has generated more and more awareness, individuals continue to use CO₂ detectors to monitor their air flow.

The fresh air we inhale will typically have about 400ppm of background CO₂ with the life sustaining oxygen of the atmosphere. By measuring your indoor air quality and CO₂ ppm levels you can further mitigate air borne illnesses, lack of productivity, and create a healthier lifestyle.

Why is CO2 measured in ppm?

We tend to measure CO₂ in "ppm" because it is the easiest way to measure something that is both colorless, odorless, and invisible to the human eye. CO₂ can further be measured by the number of CO₂ molecules per million molecules of air.

This is important because too high of CO₂ levels or ppm indicates when a room or confined space should be ventilated and prevent overexposure of CO₂ levels from occurring. When you think about the [Health and Safety Executive's \(HSE\)](#) approved code of practice, it states 1000ppm is equivalent to about 10 liters per second, per person. For any level consistently higher than 1500ppm in a occupied room indicates poor ventilation.

When it comes to safe CO₂ levels and workspaces, there are different exposure limits that must be adhered to in order to prevent negative health effects from occurring.

How do you measure CO2 ppm?



In order to m
typically use



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dispersive infrared sensor. It is popular due to its long life-sp
speed, and low cross-sensitivity to other gases.



RAD-0102-6

An NDIR CO2 sensor works by measuring infrared light in air sample. This amount of infrared light is absorbed by the molecules of carbon dioxide that are proportional to the number of CO2 molecules in the air sample. This allows the sensor to measure the amount of CO2.

For more information on CO2 measurement range and accuracy, [read more here](#).

What ppm of CO2 is toxic?

For those producing, using, or working around hazardous CO2 levels when exposed to levels above 5,000ppm for many hours serious injury can occur. For instance, higher levels of CO2 can cause asphyxiation as it replaces oxygen in the blood-stream to concentrations around 40,000ppm which is immediately dangerous to life and health.

What are the safe levels of CO and CO2 in rooms?

Carbon Dioxide (CO2)

250-400ppm	Normal background concentration in outdoor ambient air
400-1000ppm	Concentrations typical of occupied indoor spaces with good air exchange
1000-2000ppm	Headaches, sleepiness and stagnant,
2000-5000ppm	



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	stale, stuffy air. Poor concentration, loss of attention, increased heart rate and slight nausea may also be present.
5,000ppm	Workplace exposure limit (as 8-hour TWA) in most jurisdictions.
>40,000ppm	Exposure may lead to serious oxygen deprivation resulting in permanent brain damage, coma, even death.

Carbon Monoxide (CO)

9 ppm	CO Max prolonged exposure (ASHRAE standard)
35 ppm	CO Max exposure for 8 hour work day (OSHA)
800 ppm	CO Death within 2 to 3 hours
12,800 ppm	CO Death within 1 to 2 minutes



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For more information on CO2 or CO measurement technologies, speak to a CO2Meter specialist at Sales@CO2Meter.com or (877) 678-4259.

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Contact

CO2Meter.com

105 Runway Drive

Ormond Beach, FL

32174 USA

(877) 678-4259

M-F 8:30am-5pm EST



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