Carbon monoxide v carbon dioxide – do you know the difference?

In March 2015, we posted a blog about the American Red Cross getting confused between carbon dioxide (CO₂) and carbon monoxide (CO) in a household initiative. A year later, we’d like to say that people have stopped getting their gases mixed up, but unfortunately this is not the case.

We have seen a lot of stories about charities, the media and other organisations not seeming to know the difference. In February this year, a newspaper in Delaware reported on the death of a woman and attributed it to both CO and CO₂. In Melbourne, Australia, a plumbing company offered carbon dioxide testing following the death of a family following a carbon monoxide leak. It’s great that people are raising awareness of gas leaks, but the mix-up is still a concern. Even a Google search for carbon dioxide brings up more carbon monoxide websites than we would like to see.

Both of these gases have a lot of similarities - both CO₂ and CO are odourless and tasteless. Elevated levels of both gases can cause health problems and even death.

The critical chemical difference is that CO₂ contains one molecule of carbon and two molecules of oxygen, whereas it is the other way around with CO. Carbon dioxide is also non-flammable, whilst carbon monoxide is not - we certainly wouldn’t encourage you to light a match in order to determine which gas is which.

Carbon dioxide naturally occurs in the atmosphere at about 400 parts per million - humans and animals breathe in oxygen and exhale CO₂ - we can tolerate a small amount of it. However, carbon monoxide does not occur naturally in the atmosphere and can cause health problems even in low concentrations.

The density of both gases is also different. Carbon dioxide is heavier than air and detectors should be put nearer the ground, whereas carbon monoxide is slightly lighter and detectors should be placed higher up.

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We are often asked if a carbon monoxide detector will measure carbon dioxide levels, and vice versa. Unfortunately the answer is no. Carbon dioxide detectors use infrared sensors to detect levels of gas in the atmosphere, whereas carbon monoxide detectors primarily use electrochemical sensors as well as gel sensors and metal oxide semiconductors.

Analox Sensor Technology has a wide range of both carbon dioxide and carbon monoxide detectors to suit your requirements, and if you’re still unsure which gas you need to measure, our sales team will be more than happy to advise you.

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_Founded in 1981, Analox Sensor Technology provides niche and custom gas detection solutions to industries including beverage and fast food, commercial diving and laboratories. Analox has over 325 years of collective, specialist electronics and software engineering expertise, as well as a worldwide distributor network. Contact us to see how we can provide expert gas monitoring solutions and help you achieve your goals._