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CARBON DIOXIDE (CO2) VS CARBON MONOXIDE (CO)
WHAT YOU NEED TO KNOW!

Carbon dioxide (CO2) and carbon monoxide (CO) are both chemical compounds containing carbon and oxygen atoms. Despite their similar names and some shared characteristics, these two substances have distinct properties, sources and effects on living organisms and the environment.

This document will explore the key differences between carbon dioxide and carbon monoxide.

CHEMICAL COMPOSITION

CARBON DIOXIDE
Carbon dioxide consists of one carbon atom bonded to two oxygen atoms.

CARBON MONOXIDE
Carbon monoxide consists of one carbon atom bonded to one oxygen atom.

SOURCES AND PRODUCTION

- Produced during respiration in animals and combustion processes.
- Released by natural sources like volcanic eruptions and cellular respiration in plants.
- A key greenhouse gas produced by human activities such as burning fossil fuels and deforestation.

- Primarily produced through incomplete combustion of carbon containing fuels; such as gasoline, wood and natural gas.
- Commonly found in vehicle exhaust, industrial emissions, and incomplete home heating combustion.

PHYSICAL PROPERTIES (ROOM TEMP)

- Colourless
- Odourless
- Faintly acidic tasting
- Non-flammable gas

- Colourless
- Odourless
- Tasteless
- Flammable gas

SCAN ME
To visit the Hispec website

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TOXICITY & HEALTH EFFECTS

CO_2 Not toxic in normal concentrations, but high levels can lead to asphyxiation by displacing oxygen in the air.

CO Highly toxic, even at low concentrations. It binds to haemoglobin in red blood cells, reducing the blood's ability to carry oxygen, leading to carbon monoxide poisoning.

SYMPTOMS OF EXPOSURE

CO_2 Typically causes shortness of breath, dizziness, and can be life-threatening at high concentrations.

CO Symptoms include headache, nausea, confusion, unconsciousness or death in severe cases.

ENVIRONMENTAL IMPACT

CO_2 Considered a major greenhouse gas, contributing to global warming and climate change due to its ability to trap heat in the Earth's atmosphere.

CO Has a limited role as a greenhouse gas and is less significant in terms of its contribution to global warming.

DETECTION & MONITORING

CO_2 Detectable using infrared gas analysers and chemical test kits. Monitors can be purchased to measure current and average CO2 levels within a specific environment.

CO Detectable using carbon monoxide detectors, which are essential for safety in homes and workplaces.

In summary, while both carbon dioxide (CO2) and carbon monoxide (CO) contain carbon and oxygen atoms, they have distinct chemical compositions, sources, physical properties, health effects, and environmental impacts.

Carbon dioxide is primarily known as a greenhouse gas, while carbon monoxide is a toxic gas produced by incomplete combustion processes.

Understanding the slight differences between these two compounds and the symptoms that can arise from exposure is crucial for your life safety and environmental awareness.

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