



Monthly Topic: Carbon Monoxide (CO) vs. Carbon Dioxide (CO₂)

- CO and CO₂ are often mistaken for one another; however, they are quite different
- CO (Carbon Monoxide) is a colorless, odorless, tasteless toxic gas formed by the incomplete combustion of carbon compounds like gasoline, wood, coal, natural gas, propane, kerosene, oil and other heating gases. Automobile internal combustion engines are the largest source of CO.
- CO₂ (Carbon Dioxide) is a colorless, odorless gas with an acrid taste formed by human and animal respiratory cycle as well as combustion. Unsafe levels can build up in normally occupied areas as a result of poor ventilation. CO₂ is used for beverage carbonation and plant growth acceleration.



Carbon Monoxide (CO)	Carbon Dioxide (CO ₂)
Nickname: "Silent Killer"	NA
CO is composed of one carbon atom & one oxygen atom	CO ₂ is composed of one carbon atom & two oxygen atoms
Colorless	Colorless
Odorless	Odorless
Tasteless	Acrid Taste
Does not occur naturally in the atmosphere	Occurs naturally in the atmosphere at about 400 PPM
Result of incomplete combustion from carbon based compounds (ex. coal, natural gas, propane, oil, wood, etc.)	Formed by human and animal respiratory cycle as well as combustion
Flammable Gas	Non-flammable gas
Common Type of fatal poisoning	Poisoning is rare
Hazard: Binds to hemoglobin in the blood and acts as a poison	Hazard: Displaces oxygen in the room causing asphyxiation
Density: 28.01 kg/m ³ (slightly lighter than air - 29 kg/ m ³)	Density: 44.01 kg/m ³ (heavier than air)
Symptoms: dizziness, headache, nausea, shortness of breath, confusion, blurred vision, loss of consciousness	Symptoms: increased heart rate, frostbite, panic, convulsion, impaired consciousness
Target Organs: lungs, blood, heart, central nervous system	Target Organs: respiratory system, cardiovascular system
OSHA Standards: Permissible Exposure Limit (PEL) 50 PPM	OSHA Standards: PEL 5,000 PPM
NIOSH Standards: Recommend Exposure Limit (REL) 35 PPM	NIOSH Standards: REL 5,000 PPM

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Learn More

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Common Applications where both gases could be present

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| <ul style="list-style-type: none"> ✓ Parking Garages ✓ Food Processing ✓ Office Buildings ✓ Restaurants ✓ Retail ✓ Maintenance Facility | <ul style="list-style-type: none"> ✓ Vehicle Repair Facility ✓ Chemical Plants ✓ Bus Depots ✓ Grow Facilities ✓ Manufacturing Plants ✓ Confined Spaces | <ul style="list-style-type: none"> ✓ Automobile Exhaust ✓ Food & Beverage ✓ Schools ✓ Wastewater Treatment ✓ Pharmaceuticals ✓ Fast Food Establishments |
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