



What is Carbon Monoxide (CO)?

Carbon monoxide is a colorless, odorless, extremely poisonous and explosive gas that causes 1,500 accidental deaths and more than 10,000 injuries each year. CO is slightly lighter than air and mixes throughout the atmosphere. It is a by-product of incomplete combustion, produced when fuels such as natural gas, propane, heating oil, kerosene, coal, charcoal, gasoline or wood are burned with insufficient air.

Effects of CO Poisoning

When a person breathes in carbon monoxide, it is absorbed by hemoglobin, the oxygen-carrying protein in the blood. "Carboxy hemoglobin" is then formed, replacing oxygen, preventing its release in the body and eventually causing suffocation.

- *Mild Exposure:* Flu-like symptoms including slight headache, nausea, vomiting and fatigue.
- *Medium Exposure:* Severe headache, drowsiness, confusion and a fast heart rate. Prolonged exposure to medium levels of CO can result in death.
- *Extreme Exposure:* Loss of consciousness, convulsions, heart and lung failure, possible brain damage and death.

While everyone is at risk for CO poisoning, unborn babies, infants and young children, senior citizens and people with heart and lung problems are at a higher risk due to their greater oxygen needs.

Possible Sources of CO

- Gas stoves
- Hot water heaters
- Fireplaces
- Lawnmowers
- Pilot lights
- Gas or oil furnaces
- Car exhaust fumes
- Wood-burning stoves
- Charcoal
- Gas space heaters
- Tobacco smoke

How to Prevent CO Poisoning

- Inspect flues and chimneys for cracks, corrosion, holes, debris or blockages.
- Buy fuel-powered heaters with automatic shut-off features.
- Fuel heaters in well-ventilated areas.
- Service heaters before the first use of winter season
- Open windows periodically to air out your house. Homes with energy-efficient insulation can trap CO-polluted air inside.
- Use a gas stove for cooking purposes only.
- Operate gas-burning appliances in a well-ventilated room.
- Never leave a car running in a garage.
- Use charcoal grills outdoors, never indoors.
- Install and maintain carbon monoxide detectors.

Choosing a CO Detector

There are three types of CO detectors available. While each has specific features and qualities, all will alert owners to danger.

Biomimetic CO Detector

- Gel cell of synthetic hemoglobin absorbs CO.
- Combination battery and sensor module.
- Battery-sensor module must be replaced every two to three years, but the detector should last about 10 years.
- After an alarm, the sensor should clear itself within two to 48 hours when left in fresh air. If it is not cleared, it will sound again when put back in the detector. If the sensor does not clear itself after 48 hours, it must be replaced.

Semiconductor CO Detector

- Plug-in model measures CO build-up on and electronic sensor.
- Highly selective to CO gas.
- Lasts from five to 10 years.

Electrochemical CO Detector

- Fuel cell electro-chemical sensor.
- Eight-day data-logging memory records peak and accumulated CO levels.
- Responds differently to three levels of CO exposure.
- Self-powered-battery replacement is not required.
- Detector will last for at least five years.

For all CO detectors, a continuous siren signals a full alarm; a repetition of loud pulsating beeps means there is a CO build-up; and a short chirp every minute alerts you to a malfunction or low battery.

Installing a CO Detector

Install CO Detectors near bedroom areas and family rooms. Do not install them near air vents or fans. Place them in the center of the room where they can measure the overall general atmospheres. For extra protection, place one about 15 feet away from your home's heat source.

To avoid nuisance alarms, do not put a CO detector in the kitchen, garage, utility room, basement, bathroom or unventilated rooms where cleaning supplies are kept. Chemical fumes, humidity and very hot or very cold temperatures will affect the performance of a detector.

Look for These Features When Purchasing a Detector

- Stops automatically within minutes when fresh air clears CO.
- Manual reset button and test button.
- Digital warning light and light to indicate power is on.
- Horn that sounds 85 decibels.
- Approval from a testing laboratory, such as Underwriters Laboratory.
- With plug-in models, power cord at least six feet long.
- Battery/sensor pack on battery-operated models that lasts a few years.
- For use in recreational vehicles, buy an AC model or 12-volt version.

Maintenance and Testing

Keep CO detectors dust free by vacuuming air vents regularly. Test CO Detectors each week simply by pressing the Test/Silence button to make sure that the alarm sounds. If the detector ever fails to test properly, have it repaired or replaced immediately.

If the Alarm Sounds ...

If the alarm sounds and anyone in the house has symptoms of CO Poisoning

- Leave the house immediately and call 9-1-1 or an emergency response number.
- Have someone contact the fire department and consult the local fuel company.

If your alarm goes off and no one has symptoms of CO poisoning:

- Turn off all fuel-burning appliances that are possible sources of CO.
- Open windows to air out the house.
- Contact the local fuel company or a licensed technician to repair the problem.