



Carbon Monoxide Safety Tips

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Carbon monoxide (CO) is an odorless, colorless, poisonous gas. It is created when any fuel – gasoline, propane, natural gas, oil, wood, coal, and even tobacco – is burned. Carbon monoxide is a result of incomplete combustion of the fuel.

Inside your home, carbon monoxide problems can stem from a number of common sources—automobiles, furnaces, water heaters, fireplaces, wood stoves, charcoal grills, gas ranges, space heaters and portable generators. Serious problems can develop when these appliances are not in good working condition and when this combustion by-product is not properly vented outside the house. When these appliances are in good working condition with proper ventilation, carbon monoxide is not a problem.

WHAT ARE THE EFFECTS OF CO EXPOSURE?

Carbon monoxide enters the bloodstream through the lungs when you breathe. Like oxygen, CO attaches to red blood cells, only at a rate 200 times faster than oxygen. When carbon monoxide molecules attach to the red blood cells, they restrict the flow of oxygen to the heart, brain and vital organs. As carbon monoxide accumulates in the bloodstream, your body becomes starved for oxygen.

The early symptoms of carbon monoxide poisoning often are mistaken for the flu. Symptoms include headache, dizziness, weakness, nausea, vomiting, sleepiness and confusion.

- Breathing very high concentrations of carbon monoxide can be lethal in minutes.
- Breathing low concentrations over time is dangerous, too. Long-term exposure to low levels can cause permanent heart and brain damage.

The amount of carbon monoxide in a person's body can be measured by a simple "carboxyhemoglobin level" blood test.

IS YOUR FAMILY AT RISK FOR CO POISONING?

Carbon monoxide is the number one cause of poisoning deaths in the United States. According to the Mayo Clinic, at least 10,000 Americans are affected to some degree by CO poisoning each year.

Anyone is susceptible, but special care should be taken to protect unborn babies, small children, senior citizens, and people with heart or respiratory problems. They are at the greatest risk for death or serious injury.

WHAT CAN YOU DO TO PROTECT YOUR FAMILY?

To be safe, know the possible sources of CO in your home. Keep fuel-burning appliances, their chimneys and vents in good working condition. Learn the early symptoms of exposure, and if you suspect carbon

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monoxide poisoning, move outside to fresh air and get emergency help.

The first line of defense is an annual inspection and regular maintenance of your appliances. Contact a licensed contractor or call your local utility company for assistance.

Installing a CO detector will provide an added level of security. When properly installed, CO monitors can give advance warning of elevated levels of CO.

CO detectors should be mounted in or near bedrooms and living areas and on each level of a multilevel home. Use the number and location of smoke detectors installed in your home according to current building code requirements as a guide to the placement of CO detectors.

When choosing installation locations, make sure you can hear the alarm from all sleeping areas. If you install only one CO detector in your home, install it near bedrooms, not in the basement or furnace room.

Do not install your CO detector in garages, kitchens or furnace rooms. Installation of a CO detector in these areas may expose the sensor to substances that could damage or contaminate it, or the alarm may not be heard by persons in other areas of the home, especially if they are sleeping. Vehicle exhaust contains carbon monoxide that can activate a nuisance alarm. Some gas appliances in the kitchen and furnace room emit a short burst of carbon monoxide upon startup. This is normal. If the CO detector is mounted too close to these appliances, it may alarm often and become a nuisance. If you must install a CO detector near a cooking or heating appliance, install it at least 15 feet away from the appliance.

Do not install in excessively dusty, dirty or greasy areas. Dust, grease or household chemicals can contaminate or coat the detector's sensor, causing the detector not to operate properly.

Do not obstruct the vents of the detector. Place the detector where drapes, furniture or other objects do not block the flow of air to the vents.

Do not install in dead air space, such as peaks of vaulted ceilings or gabled roofs, where carbon monoxide may not reach the sensor in time to provide early warning.

Do not install in turbulent air from ceiling fans. Do not install near doors and windows that open to the outside, near fresh air vents, or anywhere that is drafty. Rapid air circulation from fans or fresh air from outside may cause the sensor to display inaccurate readings in the presence of CO.

Do not install in areas where the temperature is colder than 40 degrees F or hotter than 100 degrees F. These areas include crawl spaces, attics, porches and garages. Extreme temperatures will affect the sensitivity of the detector.

Do not install in extremely damp or humid areas like bathrooms with steamy showers. Humidity extremes (above 85 percent and below 20 percent) can affect the sensitivity of the detector.

HOW DO CARBON MONOXIDE DETECTORS OPERATE?

CO detectors are designed to sense unacceptable levels of CO from malfunctioning furnaces, appliances, gas engines or other sources. CO detectors provide early warning of the presence of carbon monoxide, usually before a healthy adult would experience symptoms. This early warning is possible, however, only if the CO detector is located, installed and maintained as described in the owner's manual.

The CO detector acts as a continuous monitor. It is not designed for use as a short-term testing device to perform a quick check for the presence of CO.

CO detectors have a limited operational life. Test your CO detector weekly, because it could fail to operate at any time. If it fails to test properly, or if its self-diagnostic test reveals a malfunction, immediately have the detector replaced.

CO detectors will not work without a continuous supply of electric power.

CO detectors do not sense smoke or fire. For early warning of fire you must install smoke detectors. CO detectors should not be used to detect the presence of natural gas (methane), propane, butane, or other combustible fuels.

CO detectors are not a substitute for property, disability, life or other insurance of any kind. Appropriate insurance coverage is your responsibility. Consult your insurance agent.

For additional information, contact your local county Extension office or the agricultural safety web site at <http://agsafety.tamu.edu>.

Home Safety Check List

What you can do...

- ✓ Buy only appliances approved by a nationally recognized testing laboratory.
- ✓ Choose fuel-burning appliances that can be vented to the outdoors, whenever possible.
- ✓ Make sure appliances are installed according to manufacturer's instructions and local building codes.
- ✓ Most appliances should be installed by professionals and should be inspected by the proper authority after installation.
- ✓ Have the heating system, vents, chimney and flue inspected and cleaned by a qualified technician every year.
- ✓ Follow manufacturer's directions for safe operation of all fuel-burning appliances.
- ✓ Examine vents and chimneys regularly for improper connections, visible rust or stains.
- ✓ Open a window when a fireplace or wood-burning stove is in use, and provide adequate outdoor air for furnace and water heater.
- ✓ Notice problems that could indicate improper appliance operation:
 - Decreasing hot water supply
 - Furnace unable to heat house or runs constantly
 - Sooting, especially on appliances
 - Unfamiliar or burning odor
 - Yellow or orange flame

- ✓ Be aware of the symptoms of carbon monoxide poisoning: headaches, dizziness, weakness, sleepiness, nausea, vomiting, confusion and disorientation.
- ✓ Recognize that CO poisoning may be the cause when family members suffer from flu-like symptoms that improve when they leave home for extended periods of time.
- ✓ Install a UL listed CO detector for added safety.
- ✓ The Consumer Product Safety Commission recommends that every residence with fuel-burning appliances be equipped with a UL listed CO detector.

What you should not do...

- ✓ Never burn charcoal inside a home, garage, cabin, recreational vehicle or camper.
- ✓ Never install, service, or convert fuel-burning appliances from one type to another without proper knowledge, skills and tools.
- ✓ Never use a gas range, oven or clothes dryer for heating your home.
- ✓ Never operate unvented gas-burning appliances, such as kerosene or natural gas space heaters, in a closed room.
- ✓ Never operate gasoline-powered engines (like vehicles, motorcycles, lawn mowers, yard equipment or power tools) in confined areas such as garages or basements, even if an outside door or window is open.
- ✓ Never ignore a safety device when it shuts off an appliance.
- ✓ Never ignore a CO detector alarm.

Warning Signs of Carbon Monoxide

Clues you can see...

- Streaks of carbon or soot around the service door of fuel-burning appliances.
- A yellow or orange flame that may indicate a problem with natural gas appliances.
- Excessive rusting on flue pipes or appliance jackets.
- Loose or missing furnace panel.
- Moisture collecting on the windows and walls of furnace rooms.
- Loose or disconnected fireplace chimney or appliance vent.
- Small amounts of water leaking from the base of the chimney, vent or flue pipe.

- Rust on the portion of the vent pipe visible from outside the home.
- The absence of a draft in the chimney (indicating blockage).
- Fallen soot from the fireplace chimney.
- Loose, damaged or discolored bricks on the chimney.

Clues you cannot see...

- Internal appliance damage or malfunctioning components.
- Improper burner adjustment.
- Hidden blockage or damage in the chimney.

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