

Consumer Product Safety Commission

Carbon Monoxide Questions and Answers

CPSC Document #466

1. What is carbon monoxide (CO) and how is it produced in the home?

Carbon monoxide (CO) is a colorless, odorless, poisonous gas. It is produced by the incomplete burning of solid, liquid, and gaseous fuels. Appliances fueled with natural gas, liquified petroleum (LP gas), oil, kerosene, coal, or wood may produce CO. Burning charcoal produces CO. Running cars produce CO.

2. How many people are unintentionally poisoned by CO?

Every year, over 200 people in the United States die from CO produced by fuel-burning appliances (furnaces, ranges, water heaters, room heaters). Others die from CO produced while burning charcoal inside a home, garage, vehicle or tent. Still others die from CO produced by cars left running in attached garages. Several thousand people go to hospital emergency rooms for treatment for CO poisoning.

3. What are the symptoms of CO poisoning?

The initial symptoms of CO poisoning are similar to the flu (but without the fever). They include:

- Headache
- Fatigue
- Shortness of breath
- Nausea
- Dizziness

Many people with CO poisoning mistake their symptoms for the flu or are misdiagnosed by physicians, which sometimes results in tragic deaths.

4. What should you do to prevent CO poisoning?

- Make sure appliances are installed according to manufacturer's instructions and local building codes. Most appliances should be installed by professionals. Have the heating system (including chimneys and vents) inspected and serviced annually. The inspector should also check chimneys and flues for blockages, corrosion, partial and complete disconnections, and loose connections.
- Install a CO detector/alarm that meets the requirements of the current UL standard 2034 or the requirements of the IAS 6-96 standard. A carbon monoxide detector/alarm can provide added protection, but is no substitute for proper use and upkeep of appliances that can produce CO. Install a CO detector/alarm in the hallway near every separate sleeping area of the home. Make sure the detector cannot be covered up by furniture or draperies.
- Never burn charcoal inside a home, garage, vehicle, or tent.
- Never use portable fuel-burning camping equipment inside a home, garage, vehicle, or tent.

- Never leave a car running in an attached garage, even with the garage door open.
- Never service fuel-burning appliances without proper knowledge, skills, and tools. Always refer to the owner's manual when performing minor adjustments or servicing fuel-burning appliances.
- Never use gas appliances such as ranges, ovens, or clothes dryers for heating your home.
- Never operate unvented fuel-burning appliances in any room with closed doors or windows or in any room where people are sleeping.
- Do not use gasoline-powered tools and engines indoors. If use is unavoidable, ensure that adequate ventilation is available and whenever possible place engine unit to exhaust outdoors.

5. What CO level is dangerous to your health?

The health effects of CO depend on the level of CO and length of exposure, as well as each individual's health condition. The concentration of CO is measured in parts per million (ppm). Health effects from exposure to CO levels of approximately 1 to 70 ppm are uncertain, but most people will not experience any symptoms. Some heart patients might experience an increase in chest pain. As CO levels increase and remain above 70 ppm, symptoms may become more noticeable (headache, fatigue, nausea). As CO levels increase above 150 to 200 ppm, disorientation, unconsciousness, and death are possible.

6. What should you do if you are experiencing symptoms of CO poisoning?

If you think you are experiencing any of the symptoms of CO poisoning, get fresh air immediately. Open windows and doors for more ventilation, turn off any combustion appliances, and leave the house. Call your fire department and report your symptoms. You could lose consciousness and die if you do nothing. It is also important to contact a doctor immediately for a proper diagnosis. Tell your doctor that you suspect CO poisoning is causing your problems. Prompt medical attention is important if you are experiencing any symptoms of CO poisoning when you are operating fuel-burning appliances. Before turning your fuel-burning appliances back on, make sure a qualified serviceworker checks them for malfunction.

7. What has changed in CO detectors/alarms recently?

CO detectors/alarms always have been and still are designed to alarm before potentially life-threatening levels of CO are reached. The UL standard 2034 (1998 revision) has stricter requirements that the detector/alarm must meet before it can sound. As a result, the possibility of nuisance alarms is decreased.

8. How should I install a CO Alarm?

CO alarms should be installed according to the manufacturer's instructions. CPSC recommends that one CO alarm be installed in the hallway outside the bedrooms in each separate sleeping area of the home. CO alarms may be installed into a plug-in receptacle or high on the wall because CO from any source will be well-mixed with the air in the house. Make sure furniture or draperies cannot cover up the alarm.

9. What should you do when the CO detector/alarm sounds?

Never ignore an alarming CO detector/alarm. If the detector/alarm sounds: Operate the reset button. Call your emergency services (fire department or 911). Immediately move to fresh air -- outdoors or by an open door/window.

10. How should a consumer test a CO detector/alarm to make sure it is working?

Consumers should follow the manufacturer's instructions. Using a test button, some detectors/alarms test whether the circuitry as well as the sensor which senses CO is working, while the test button on other detectors only tests whether the circuitry is working. For those units which test the circuitry only, some manufacturers sell separate test kits to help the consumer test the CO sensor inside the alarm.

11. What is the role of the U.S. Consumer Product Safety Commission (CPSC) in preventing CO poisoning?

CPSC worked closely with Underwriters Laboratories (UL) to help develop the safety standard (UL 2034) for CO detectors/alarms. CPSC helps promote carbon monoxide safety awareness to raise awareness of CO hazards and the need for regular maintenance of fuel-burning appliances. CPSC recommends that every home have a CO detector/alarm that meets the requirements of the most recent UL standard 2034 or the IAS 6-96 standard in the hallway near every separate sleeping area. CPSC also works with industry to develop voluntary and mandatory standards for fuel-burning appliances.

12. Do some cities require that CO detectors/alarms be installed?

On September 15, 1993, Chicago, Illinois became one of the first cities in the nation to adopt an ordinance requiring, effective October 1, 1994, the installation of CO detectors/alarms in all new single-family homes and in existing single-family residences that have new oil or gas furnaces. Several other cities also require CO detectors/alarms in apartment buildings and single-family dwellings.

13. Should CO detectors/alarms be used in motor homes and other recreational vehicles?

CO detectors/alarms are available for boats and recreational vehicles and should be used. The Recreation Vehicle Industry Association requires CO detectors/alarms in motor homes and in towable recreational vehicles that have a generator or are prepped for a generator.

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To report a dangerous product or a product-related injury, call CPSC's hotline at (800) 638-2772 or CPSC's teletypewriter at (800) 638-8270, or visit CPSC's web site at www.cpsc.gov/talk.html. To join a CPSC email subscription list, please go to www.cpsc.gov/cpsclist.asp. Consumers can obtain this release and recall information at CPSC's Web site at www.cpsc.gov.

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