



## Ventura City Fire Department

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### Carbon Monoxide Questions & Answers

#### **What is carbon monoxide (CO) and how is it produced?**

Carbon monoxide (CO) is a deadly, colorless, odorless, poisonous gas. It is produced by the incomplete burning of various fuels, including coal, wood, charcoal, oil, kerosene, propane, and natural gas. Products and equipment powered by internal combustion engines such as portable generators, cars, lawn mowers and power washers also produce CO.

#### **How many people are unintentionally poisoned by CO?**

CO poisoning is the leading cause of accidental poisoning in the United States according to the American Medical Association. High concentrations of this colorless, odorless gas can cause cognitive impairment, loss of consciousness and/or coma, and is responsible for an average of 450 deaths and more than 20,000 emergency room visits in the U.S. each year.

#### **What are the symptoms of CO poisoning?**

Because CO is odorless, colorless, and otherwise undetectable to the human senses, people may not know that they are being exposed. The initial symptoms of low to moderate CO poisoning are similar to the flu (but without the fever). They include:

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

High level CO poisoning results in progressively more severe symptoms, including:

- Mental confusion
- Vomiting
- Loss of muscular coordination
- Loss of consciousness
- Ultimately death

Symptom severity is related to both the CO level and the duration of exposure. Occupants and/or physicians can mistake mild to moderate CO poisoning symptoms for the flu, which sometimes results in tragic deaths. For rapidly developing, high level CO exposures (e.g., associated with use of generators in residential spaces), victims can rapidly become mentally confused and can lose muscle control without having first experienced milder symptoms; they will likely die if not rescued.

### **What CO level is dangerous to my health?**

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

### **How should a consumer test a CO alarm to make sure it is working?**

Consumers should follow the manufacturer's instructions. Using a test button tests whether the circuitry is operating correctly, not the accuracy of the sensor. Alarms have a recommended replacement age, typically five to seven years, which can be obtained from the product literature or from the manufacturer.

### **How should I install a CO Alarm?**

CO alarms should be installed according to the manufacturer's instructions. We strongly recommend that at least 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. CO is approximately the same weight and will spread evenly into the air. Thus, unlike smoke alarms you may place CO alarms at your desired height onto your wall. Combination smoke and CO alarms installation instructions are identical to smoke alarms as smoke rises. Hard wired or plug-in CO alarms should have battery backup. Avoid tight corners and locations that are near heating vents or that can be covered by furniture or draperies. For combination smoke/CO alarms, follow smoke alarms guidelines and manufacturer's instructions.

### **What should you do when the CO alarm sounds?**

Never ignore a sounding CO alarm! It is warning you of a potentially deadly hazard. If the alarm signal sounds **do not try to find the source of the CO:**

- Immediately move outside to fresh air.
- Call your emergency services, fire department or 911.

- After calling 911, do a head count to check that all persons are accounted for. DO NOT reenter the premises until the emergency services responders have given you permission. You could lose consciousness and die if you go in the home.
- If the source of the CO is determined to be a malfunctioning appliance, DO NOT operate that appliance until it has been properly serviced by trained personnel.

If authorities allow you to return to your home, and your alarm reactivates within a 24 hour period, repeat steps 1, 2 and 3 and call a qualified appliance technician to investigate for sources of CO from all fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection, have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturers' instructions, or contact the manufacturers directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.