



Safety Brief Series

Safety Brief - 2018-12

Carbon Monoxide Safety

Carbon monoxide (CO) is a poisonous, colorless, odorless, and tasteless gas. Although it has no detectable odor, CO is often mixed with other gases that do have an odor. So, you can inhale carbon monoxide right along with gases that you can smell and not even know that CO is present. CO is a common industrial hazard resulting from the incomplete burning of natural gas and any other material containing carbon, such as gasoline, kerosene, oil, propane, coal, or wood. One of the most common sources of exposure in the workplace is the internal combustion engine.

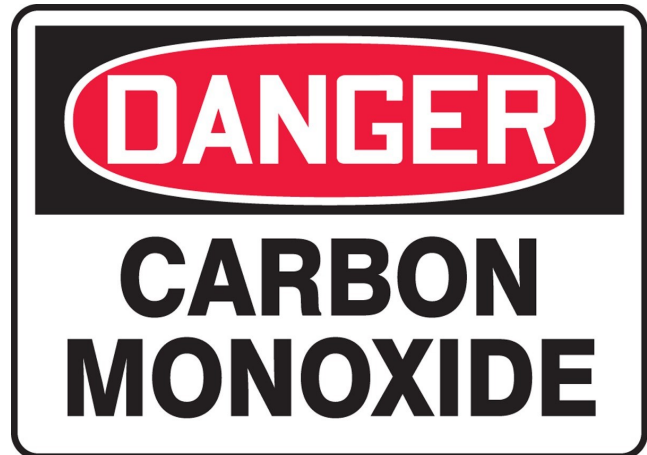
How does CO harm you?

- Carbon monoxide is harmful when inhaled because it displaces oxygen in the blood and deprives the heart, brain, and other vital organs of oxygen.
- Large amounts of CO can overcome you in minutes without warning—causing you to lose consciousness and suffocate.
- Besides tightness across the chest, initial symptoms of CO poisoning may include headache, fatigue, dizziness, drowsiness, or nausea.
- During prolonged or high exposures, symptoms may worsen and include vomiting, confusion, and collapse in addition to loss of consciousness and muscle weakness. Symptoms vary widely from person to person.
- CO poisoning may occur sooner in those most susceptible: people with lung or heart disease, or those who already have elevated CO blood levels, such as smokers.
- CO poisoning can be reversed if caught in time. But even if you recover, acute poisoning may result in permanent damage to the parts of your body that require a lot of oxygen such as the heart and brain.

Who is at risk?

You may be exposed to harmful levels of CO in boiler rooms, breweries, warehouses, petroleum refineries, pulp and paper production, and steel production; around docks, blast furnaces, or coke ovens; or in one of the following occupations:

- Welder
- Garage mechanic
- Firefighter
- Metal oxide reducer
- Diesel engine operator
- Forklift operator
- Marine terminal worker
- Tool booth or tunnel attendant



What can you do if you suspect someone has been poisoned?

When you suspect CO poisoning, promptly taking the following actions can save lives:

- Move the victim immediately to fresh air in an open area.
- Call 911 or another local emergency number for medical attention or assistance.
- Administer 100-percent oxygen using a tight-fitting mask if the victim is breathing.
- Administer cardiopulmonary resuscitation if the victim has stopped breathing.

Warning: You may be exposed to fatal levels of CO poisoning in a rescue attempt. Rescuers should be skilled at performing recovery operations and using recovery equipment. Employers should make sure the rescuers are not exposed to dangerous CO levels when performing rescue operations.

Action Item:

What can employees do to help prevent CO poisoning?

Employees should do the following to reduce the chances of CO poisoning in the workplace:

- Report any situation to your employer that might cause CO to accumulate.
- Be alert to ventilation problems—especially in enclosed areas where gases of burning fuels may be released.
- Report promptly complaints of dizziness, drowsiness, or nausea.
- Avoid overexertion if you suspect CO poisoning and leave the contaminated area.
- Tell your doctor that you may have been exposed to CO if you get sick.
- Avoid the use of gas-powered engines, such as those in powered washers as well heaters and forklifts, while working in enclosed spaces.

How can employers help prevent CO poisoning?

To reduce the chance of CO poisoning in your workplace, you should take the following actions:

- Install an effective ventilation system that will remove CO from work areas.
- Maintain equipment and appliances (e.g., water heaters, space heaters, cooking ranges) that can produce CO in good working order to promote their safe operation and to reduce CO formation.
- Consider switching from gasoline-powered equipment to equipment powered by electricity, batteries, or compressed air if it can be used safely.
- Prohibit the use of gasoline-powered engines or tools in poorly ventilated areas.
- Provide personal CO monitors with audible alarms if potential exposure to CO exists.
- Test air regularly in areas where CO may be present, including confined spaces.
- Install CO monitors with audible alarms.
- Use a full-face piece pressure-demand self-contained breathing apparatus (SCBA) certified by the National Institute for Occupational Safety and Health (NIOSH), or a combination full-face piece pressure demand supplied-air respirator with auxiliary self-contained air supply in areas with high CO concentrations, i.e., those immediately dangerous to life and health atmospheres. (See 29 CFR 1910.134.)
- Use respirators with appropriate canisters for short periods under certain circumstances where CO levels are not exceedingly high.
- Educate workers about the sources and conditions that may result in CO poisoning as well as the symptoms and control of CO exposure.

In addition, if your employees are working in confined spaces where the presence of CO is suspected, you must ensure that workers test for oxygen sufficiency before entering.

Resources and References:

- **OSHA 1917.24 Carbon Monoxide:** https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10366
- **OSHA Carbon Monoxide Fact Sheets and Quick Cards:** <https://www.osha.gov/pls/publications/publication.athruz?pType=Industry&pID=30>

***This information was sourced from the 2002 OSHA Fact Sheet
“Carbon Monoxide Poisoning”***

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**Adapted from the Cornell Local Roads Program—New York LTAP Center’s
Everyday Safety Tailgate Talk**

Tailgate Safety Talk Sign In Sheet

Topic: **Carbon Monoxide Safety**

Agency: _____

Crew: _____

Supervisor/Talk Leader: _____

Date: _____

	Print Name	Signature
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