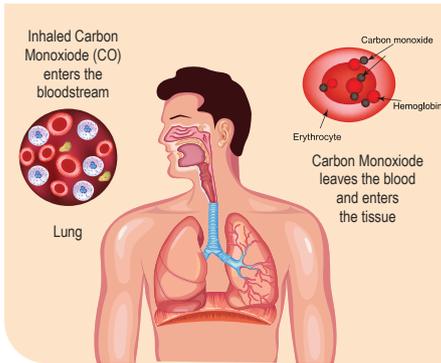


Here is a series of safeguards and precautionary measures, that could help save numerous lives.

#### Overview



Carbon monoxide (CO) is a colorless, odorless, and tasteless gas that is toxic when inhaled into the lungs, acting as a chemical asphyxiant.

CO is virtually undetectable and can harm workers without warning. CO is a common industrial hazard resulting from the incomplete burning of natural gas and any other material containing carbon.

CO interferes with the body's ability to carry oxygen to tissues and vital organs. When CO gas is inhaled into the lungs, it accesses the body's blood stream. Through the circulatory system, CO binds to the red blood cells, which think it is oxygen. CO gas is absorbed by hemoglobin in the red blood cells up to 200 times more rapidly than oxygen. This results in the displacement of oxygen, which reduces the uptake of oxygen into the body.

#### Common Sources

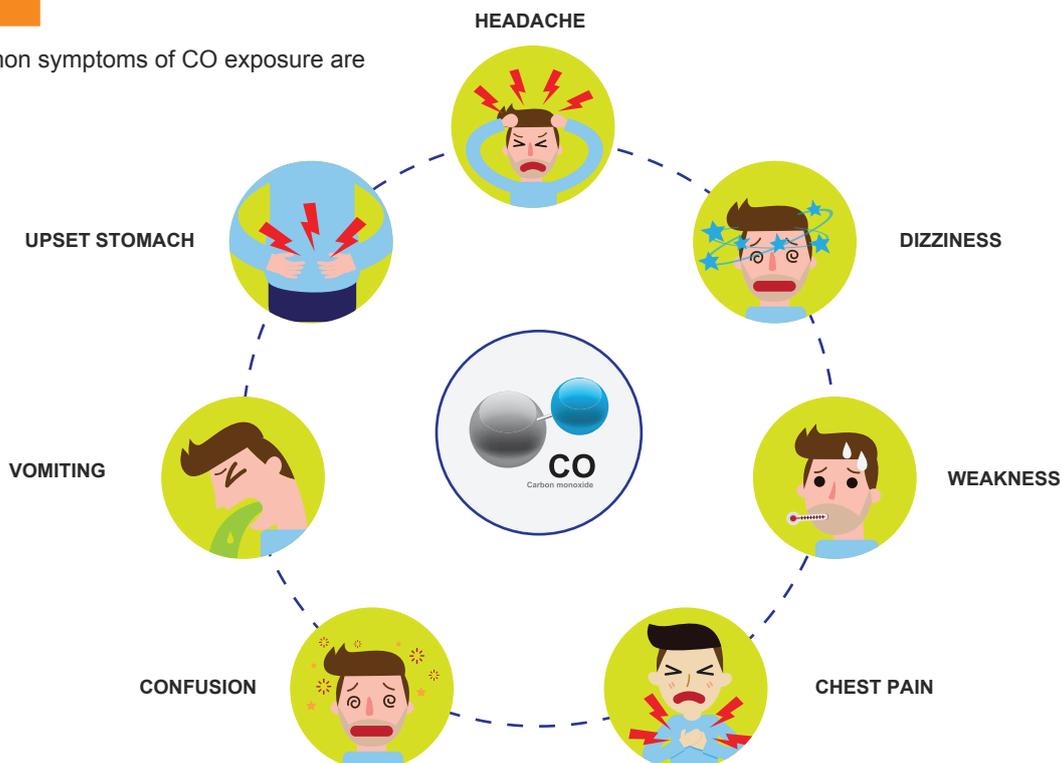
Sources like internal combustion engines are a concern to workers, because they can form localized, high-hazard areas, especially in confined spaces or areas with poor ventilation.

Potential sources for CO include vehicles, portable generators, gasoline-powered tools / equipment, natural gas heaters, boilers, furnaces and water heaters, generators and gas ovens used for heat.



#### Symptoms

The most common symptoms of CO exposure are



## Case Study

A 35 years old male mechanic was found unconscious at an automobile garage during working hours in Central Delhi on 2013 and he was declared dead one hour after hospitalization on the same day.  
The chemical analysis report of blood and viscera confirmed toxicity due to carbon monoxide poisoning.

## Actions

If you suspect someone has CO exposure:

- Ensure your own safety before attempting a rescue (wear protective equipment).
- Move the victim to clean, fresh air or remove the source of carbon monoxide.
- Call for medical attention and direction.
- Perform rescue breathing, if breathing has stopped and if you have been trained to do so.

Note: You may be exposed to CO in a rescue attempt. Rescuers should be skilled in rescue procedures before entering polluted premises.



## Prevention:

To reduce the chances 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 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.
-  • Use a full-facepiece pressure-demand self-contained breathing apparatus (SCBA) .
-  • 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.
-  • Ventilation is one of the most common engineering controls for airborne contamination. Some ventilation systems are designed to move fresh air in, around and out of rooms. Other systems move air in order to provide a comfortable cooled or heated environment.

### Liberty Videocon General Insurance Company Limited

10th Floor, Tower A, Peninsula Business Park, Ganpatrao Kadam Marg, Lower Parel, Mumbai - 400 013  
Phone: +91 22 6700 1313 Fax: +91 22 6700 1606 Email: [LiVSafe@libertyvideocon.com](mailto:LiVSafe@libertyvideocon.com)

[www.libertyvideocon.com](http://www.libertyvideocon.com)

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