



CO Hazards While Driving

Even small amounts of carbon monoxide (CO) exposure can lower the physical and mental reactions of a driver. This may be a reason why experienced drivers on straight highways and in broad daylight can run off the road or crash head-on into an approaching vehicle. Make sure that your exhaust system is in good condition and pull over if you begin to experience symptoms of CO poisoning.

No Immunity

The hazard of carbon monoxide is universal. It exists, to some degree, in all industries and in every home.

Some authorities state that under repeated exposure to small quantities, the primary stage of carbon monoxide poisoning tends to become chronic and heightened in effect.

It is important to remember that continuous exposure to a very low concentration of carbon monoxide, over a sufficient length of time, can produce the same toxic effect as short exposure to a higher concentration.

Keep the Air Fresh

It's the best safeguard against carbon monoxide exposure.

Make safety work for you. IHSA is your first step.

IHSA is a leader in health and safety education. Through skills-based training, auditing, and evaluation, we provide safety solutions to those who perform high-risk activities such as working at heights, working with energized high-voltage power systems, driving motor vehicles, transporting dangerous goods, working on suspended access equipment, and utility line clearing.

We help our members continuously improve their health and safety performance by providing effective and innovative sector-specific programs, products, and services.

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for you at ihsa.ca



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Carbon Monoxide

The Unseen Enemy for
Drivers

Carbon Monoxide The Unseen Enemy for Drivers



Carbon monoxide (chemical abbreviation: CO) is the “unseen” enemy because it is a colourless, odourless, highly poisonous gas. Through the normal process of inhalation or breathing, it can be absorbed into the bloodstream 200 times faster than oxygen. In doing so, it deprives the body tissues of the oxygen that is necessary for survival.

Sources of Carbon Monoxide (CO)

Carbon monoxide is a by-product of incomplete combustion. Whenever combustion is taking place, there is a risk that carbon monoxide gases can build up to dangerous levels. Gasoline, propane, and diesel engines all release CO gas. So do fuel-fired heating devices and certain types of welding.

CO gas can accumulate in any enclosed or poorly ventilated space where an engine is running, such as

- basements or parts of buildings under construction
- tarped-in areas of houses or buildings
- garages, warehouses, or storage areas
- areas where a fuel-fired heater is being used
- unventilated cabs or parked vehicles
- vehicles with faulty exhaust or muffler systems
- vehicles with floor areas or engine-cab compartment walls that allow the gases to leak into the cab.

Symptoms of CO Poisoning

At Low Concentrations

- Shortage of breath on moderate exertion
- Slight headache

At High Concentrations

- Severe headache
- Mental confusion or dizziness
- Impaired vision and hearing
- Collapsing or fainting

At Extreme Concentrations

- Unconsciousness or death

Even if you survive exposure to carbon monoxide gas at high or extreme concentrations, you may suffer permanent damage to your body tissues.

First Aid Treatment

If you suspect a case of carbon monoxide poisoning, you should immediately:

1. Assess the area to ensure it is safe for you to provide first aid to the casualty.
2. Call 9-1-1.
3. Move the person into the open air as quickly as you can.
4. Check pulse and respiration.
5. If the heart has stopped beating, trained personnel should start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Continue until the person begins breathing or medical help arrives.

NOTE: Some of the first aid procedures listed above require advanced first aid training. You should be familiar with emergency procedures, the location and proper use of emergency equipment (e.g., a self-contained breathing apparatus), and methods of protecting yourself during rescue operations.



Occupational Exposure Limits

Occupational exposure limits (OELs) are intended to restrict the airborne concentrations of hazardous biological or chemical agents that workers may be exposed to on a daily basis. By limiting a worker’s exposure, there is less chance that the worker will experience adverse effects from these substances.

In Ontario, both federally and provincially regulated employers shall take all necessary measures (i.e., engineering controls, work practices, and hygiene practices) to ensure that their employees are not exposed to 25 ppm of more of carbon monoxide for a normal 8-hour work day and a 40-hour work week. This may require employers to have the air monitored.

8-hour time-weighted average (TWA)* = 25 ppm

Maximum for any 30-minute period† = 75 ppm

Maximum amount at any time‡ = 125 ppm

*The time-weighted average (TWA) airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day.

†For certain substances that do not have a short-term exposure limit (STEL), exposures above the TWA must be controlled within the recommended excursion limits.



Preventing CO Exposure

Vehicles

- Make sure the air intake and fuel systems are working correctly.
- Inspect all vehicles and equipment regularly for such things as leaking exhaust connections, manifolds, loose or broken floor boards, exhaust pipes, and mufflers.
- Ensure that exhaust discharge carries the gases beyond the driver or passenger compartment of the vehicle.
- Ensure there is adequate ventilation in your own vehicle.
- Don’t leave a machine running. Limit running time and don’t let engines idle.

Enclosed Areas

- Never run an internal combustion engine in an enclosed space unless a ventilation or exhaust system is available and working properly.
- If engines have been running in an enclosed area, allow time for a flow of fresh air into the area before entering.
- Eliminate sources of CO, if possible. For example, use electric rather than fuel-powered equipment.
- Vent exhaust outside using exhaust hoses or fans to bring in fresh air. Keep doors and windows open.
- Operate engines outdoors if possible. For example, welding machines and generators can be left outside while the leads run into the building.
- Have a written policy for controlling and monitoring CO in your health and safety program.
- Never work alone in an area where CO can accumulate.
- Monitor CO levels continuously with a gas detector.
- Use respiratory protection (it must be a supplied-air respirator) if your controls are inadequate.

At the first indication of symptoms—headache, dizziness, or drowsiness—get out of your vehicle or enclosed area and into the fresh air.