

# SAFETY MEETING: Hazard Alert – Carbon Monoxide

## CANNABIS

Carbon monoxide (CO) is a toxic, odourless, invisible gas that comes from incomplete combustion of any carbon-containing material (wood, coal, oil, kerosene, gasoline, diesel fuel, natural gas, or propane). Victims do not realize they are in danger of CO poisoning because they cannot see or smell the gas.

CO gas displaces oxygen from the blood interfering with the blood's ability to carry oxygen to tissues, most importantly the brain. If CO continues to be inhaled it progressively reduces the blood's oxygen-carrying capacity.

The effects of CO poisoning may vary from worker to worker depending on overall health status, muscular activity, duration of exposure and CO concentration. The following are symptoms of exposure to carbon monoxide:

<b>Dizziness</b>	<b>Drowsiness</b>	<b>Nausea</b>
<b>Weakness</b>	<b>Headache</b>	<b>Confusion</b>

**The Immediately Dangerous to Life and Health (IDLH) concentration for CO is 1200 ppm.**

Since CO may impact cognitive abilities like a worker's sense of judgement, some workers may find it difficult to escape from places where there is a significant amount of CO. This can lead to more severe health effects such as permanent organ damage, including the brain and heart, and can result in coma or death.



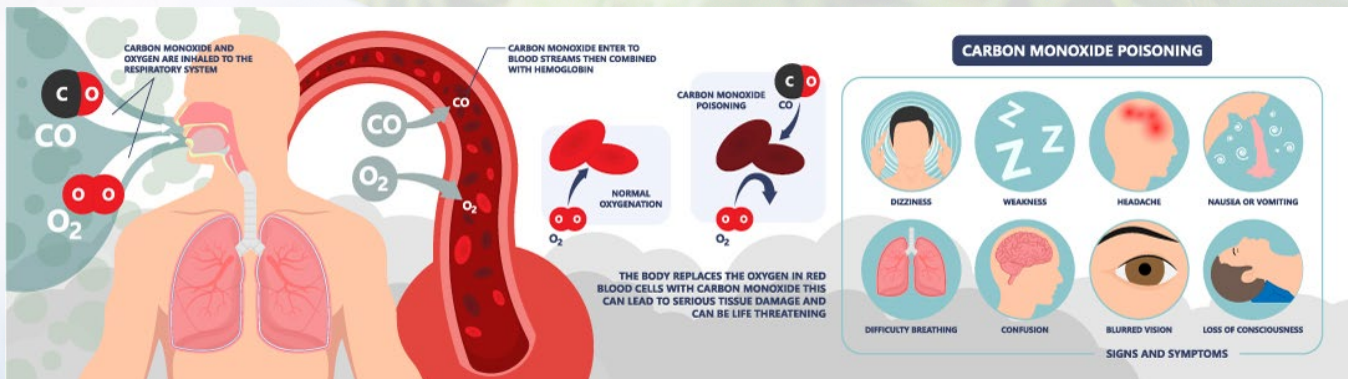
### Exposure Limits

The occupational exposure limit (EL) is a concentration to which nearly all workers could be exposed for eight hours a day, five days a week, without adverse health effects. Employers must ensure that workers are not exposed to CO levels above the EL.

The WorkSafeBC EL for CO is:

- 8-hour time weighted average (TWA) of 25 ppm
- 15-minute short-term exposure limit (STEL) of 100 ppm

*The STEL must not be exceeded more than four times in an 8-hour work shift, with at least 1-hour between any two successive 15-minute periods.*



**Using a functional gas alarm can help detect minimal levels of CO to avoid over-exposure. AgSafe's resources can help you develop your workplace exposure control plan.**



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### How Can Carbon Monoxide Exposure Occur at this Worksite?

Internal combustion engines can generate hazardous quantities of CO which can be fatal if the gas accumulates in confined or poorly ventilated areas.

Workers are potentially exposed to these sources of CO at this workplace (list all CO generating equipment at this worksite).

- Gas powered pressure washers


### Controlling the Risk of Worker Carbon Monoxide Exposure.

#### Engineering/Elimination options:

- Can gas powered equipment be replaced with a suitable electrically powered equivalent?
- Ensure engines are maintained to manufacturer's specifications to increase efficiency.

#### Ventilation:

- Prevent build up of CO by providing suitable ventilation of enclosed spaces.
- Use suitable local exhaust systems ventilation systems.

#### Work practices:

- Isolate workers from dangerous work areas.
- Implement an Exposure Control Plan if workers are exposed to CO at the workplace.
- Post signage advising workers of potential CO exposure.

#### Monitoring:

- Monitor worker exposure levels using suitable electrical CO detectors with alarms that alert worker to exposure.

#### Education:

- Workers must be taught how to prevent and recognize CO poisoning, and how to provide first aid to those overcome by the gas.

#### Personal protective equipment:

- Workers at risk of exposure should wear functioning personal CO gas detectors.
- If respiratory protection is required only suitable self-contained breathing apparatus should be used.



**Further information:** If you require further information, please contact AgSafe for assistance.

**References:** WorkSafeBC, Carbon Monoxide in Industry, WorkSafe Bulletin WS 2009-02