

DATA SHEET

CARBON MONOXIDE (CO)

Definition

Carbon monoxide, or CO, is an odourless, tasteless and colourless toxic gas formed by the incomplete combustion of organic products such as gasoline, propane, wood, paper, coal and heating oil. It is also released during welding and oxyacetylene cutting.

Where CO is found

Carbon monoxide is found in several places, such as the following:

- foundries and steel works
- petroleum refineries
- mines
- garages (car repair and maintenance)
- arenas (Zamboni machines)
- abrasives plants
- warehouses (forklifts)
- metal products businesses

Moreover, it is a by-product of fires.

How CO enters the body

Carbon monoxide enters the body via the respiratory tract.

Once in the lungs, it is absorbed by the blood. Hemoglobin, which has an affinity for carbon monoxide that is 210 times its affinity for oxygen, becomes rapidly overloaded with CO and can no longer transport oxygen.

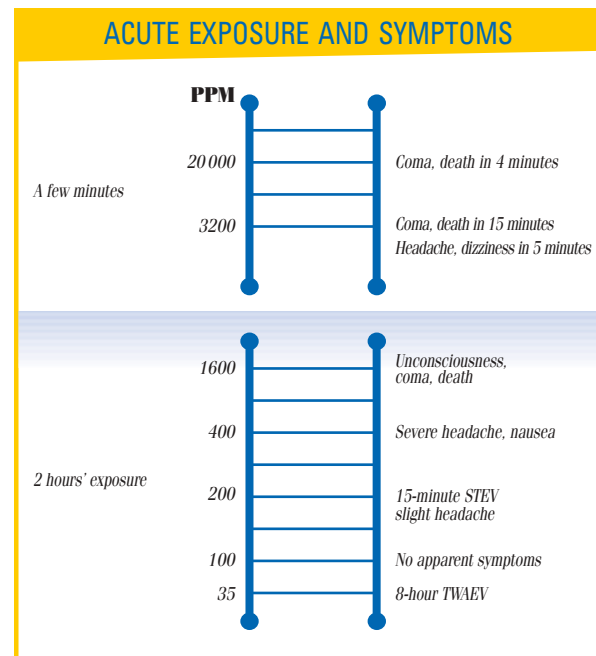
Thus, once carbon monoxide dislodges the oxygen in the body, death from asphyxiation ensues.

Impact of acute carbon monoxide exposure on a person's health

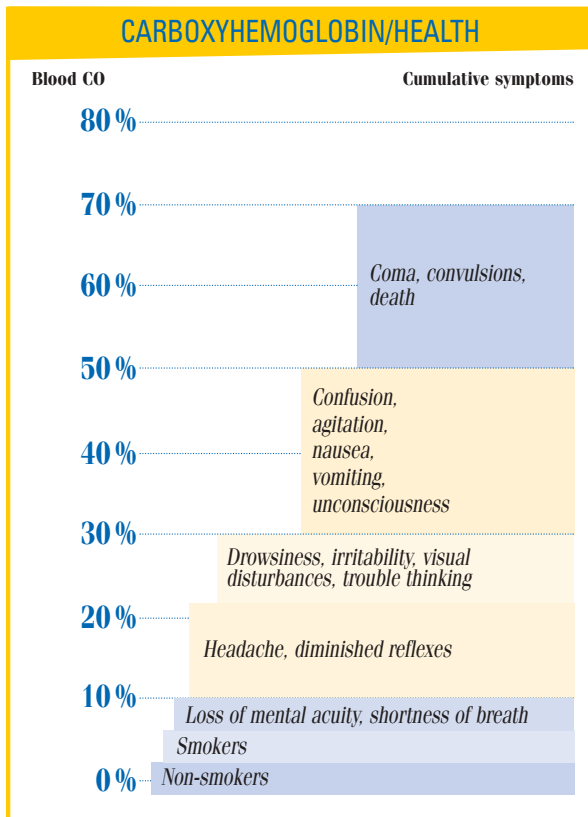
The impact on a person's health varies according to the following factors:

- the concentration of CO in the ambient air
- the length of exposure
- the person's physical condition
- the level of exertion during exposure

This is clearly indicated in the chart below.



The following chart shows the impact of carboxyhemoglobin levels on health.



Smoking is a major aggravating factor, as it increases the carboxyhemoglobin level by as much as 5 to 10 times the level in non-smokers, thereby increasing the risk of carbon monoxide poisoning.

Emergency intervention

What to do in the event of a carbon monoxide leak

1. Take rapid action.
2. Follow the establishment's emergency measures plan and the procedure for evacuating injured persons.
3. Call 911.
4. Stop the source of the poisoning, if possible.
5. Air the room.
6. Use adequate personal protection so as not to become a victim yourself.

First aid and emergency medical care

■ Inhalation

- Transport the victim immediately to a place with uncontaminated fresh air.

If the victim is conscious and breathing,

- settle him or her in a comfortable, semi-seated position, and
- administer oxygen (if it is available and you have the necessary training).

When the victim breathes carbon monoxide-free ambient air, the concentration of carboxyhemoglobin is reduced by half approximately every four hours. If oxygen is administered, the reduction can take as little as 40 minutes.

If the victim is unconscious or not breathing,

- begin cardiopulmonary resuscitation (CPR).

IN ALL CASES

The first-aider must

- ensure the victim is comfortable (warm, resting);
- have the victim transported to the hospital emergency ward, indicating possible CO poisoning;
- report the accident to the immediate supervisor and to health services or personnel services.

Reference

Robert Lauwerys, *Toxicologie industrielle et intoxication professionnelle*, 3^e édition, Paris-Milan-Barcelona-Bonn, Masson, 1992, pp. 404, 411.

RRSSS Mauricie-Bois-Francis and CLSC Drummond, CLSC Centre-de-la-Mauricie and CLSC Du Rivage, *Le monoxyde de carbone en milieu de travail*, winter 1996.

