

Is Your Propane Forklift Causing Headaches...or Worse?

Every year, there are hundreds of accidental deaths in the United States from carbon monoxide poisoning. Some of these deaths occur in the workplace. The Bureau of Labor Statistics reported 21 worker deaths in private industry from carbon monoxide exposure in 2001.

Carbon monoxide (CO) is a colorless, odorless, tasteless, non-irritating gas, so you don't know when you are breathing it. Normally, when we breathe, the hemoglobin in our blood combines with oxygen and transports it throughout our body. When CO is present, it combines 200-250 times more readily with hemoglobin, depriving the body of necessary oxygen.

Symptoms of carbon monoxide poisoning may include headache, fatigue, dizziness, shortness of breath, nausea, vomiting, loss of consciousness, and coma. Because some of these symptoms are common to other illnesses, CO poisoning is often misdiagnosed. Severe poisonings can result in permanent damage to the brain, nerves, and heart or even death. Even at low levels of exposure, where the worker may not experience any symptoms, CO may contribute to heart disease and have adverse effects on the fetus of a pregnant woman.

How much CO is too much? Cal/OSHA has two exposure limits for CO. The average exposure for an 8-hour day cannot exceed 25 parts per million (ppm) and exposures may never exceed 200 ppm. Worker exposures can be measured easily and inexpensively with color diffusion tubes. More sophisticated equipment is also available.

All propane-powered forklift trucks produce some carbon monoxide because of the incomplete combustion of fuel, but a poorly maintained truck can produce extremely high concentrations of CO. In a poorly ventilated area, dangerous levels of CO can build up even with a well-maintained truck. So what can you do to protect your workers from carbon monoxide poisoning?

To protect workers from CO

- Use electric forklifts indoors or in enclosed spaces. This is essential in cold storage rooms or other poorly ventilated areas.
- Set up a regular maintenance program for your propane forklift. Various maintenance problems can lead to higher CO emissions.
- Check CO emissions when tuning your engine. Tuning by "sound" and "performance" is likely to result in a rich fuel mixture, which produces higher CO concentrations.
- Install a three-way catalytic converter in conjunction with an air-to-fuel ratio controller. In addition to removing up to 99% of the CO emissions, toxic NO_x and hydrocarbons are also removed.
- Allow your engine to warm up outside. A cold engine produces more CO.
- Ensure the work area is adequately ventilated.
- Train your employees to recognize the signs and symptoms of CO poisoning.
- If you suspect someone has CO poisoning, remove the person to fresh air and call 911.

For more information on CO and forklifts, visit

<http://www.extension.iastate.edu/Pages/communications/CO/Coforklift.html>. If you need assistance identifying or controlling carbon monoxide exposures in the workplace, your loss control representative can put you in touch with a State Fund industrial hygienist.

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