



## HAZARDOUS MATERIAL TRAINING - CARBON DIOXIDE (CO<sub>2</sub>)

Liquid carbon dioxide (CO<sub>2</sub>) is being used by various restaurants and cafes for beverages. The hazards associated with carbon dioxide needs to be discussed with employees and managers working at these locations. Carbon dioxide is an odorless, tasteless, and colorless gas hence making it very hard to detect.

If an employee suspects a CO<sub>2</sub> leak or experiences symptoms of a leak, then the employees should notify the proper management and follow the protocols to evacuate the facility.

The permissible exposure limit (PEL) for CO<sub>2</sub> is 10,000 ppm or 1% for a normal work day. When CO<sub>2</sub> is released into the atmosphere it displaces the oxygen in the air and makes the air acidic (toxic). Carbon dioxide concentrations above 2% may cause feeling of heaviness in chest, dizziness, nausea, confusion or deeper respirations. Toxic levels of CO<sub>2</sub> are above 5% and may cause unconsciousness or death within minutes of exposure. Symptoms of overexposure vary from person to person, refer to the safety data sheet for CO<sub>2</sub> for more information. Contact with the cold gas (liquid CO<sub>2</sub>) can also cause freezing of exposed tissue.

The tank area needs to be free from any obstacles so that the

the emergency shutoffs can be accessed during time of an emergency. The area needs to have proper ventilation and the ventilation is required prior to re-entry into facility after a hazardous material release.

Carbon dioxide alarms are not required but are recommended. The CO<sub>2</sub> monitor can help detect if CO<sub>2</sub> concentrations exceed PELs and would automatically notify employees to evacuate by alarming.

If a CO<sub>2</sub> release occurs at the facility please evacuate first, then notify the emergency response personnel (911) immediately, then call California State Warning Center (CAL OES) at 800-852-7550, and then notify your local CUPA at 714-433-7000.

### Regulatory Reference:

Facility that stores CO<sub>2</sub> that exceeds 1000 cubic feet (STP) is responsible for submitting a hazardous material business plan (HMBP) electronically on CERS per HSC 6.95 25505 (a)(5)(c). The facility is also responsible for providing training for their employees on the HMBP on an annual basis HSC 6.95 25505(a)(4).



NuCO2 Bulk Liquid CO<sub>2</sub> cylinder, this is a 4000 CF (or 54 gallon) cylinder.

## KNOW YOUR FACILITY PROCESS RECOGNIZE THE HAZARDS

### References:

1. [www.huntingtonbeachca.gov/files/users/fire/OCFM-CO2Guideline-06-16-15.pdf](http://www.huntingtonbeachca.gov/files/users/fire/OCFM-CO2Guideline-06-16-15.pdf)
2. [www.cdc.gov/niosh/pel88/124-38.html](http://www.cdc.gov/niosh/pel88/124-38.html)
3. [http://ethanolrfa.3cdn.net/2d1bea9178e0e876bd\\_idm6i8enq.pdf](http://ethanolrfa.3cdn.net/2d1bea9178e0e876bd_idm6i8enq.pdf)