

Oklahoma Department of Labor



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COMMISSIONER OF LABOR

Liquid Carbon Dioxide Storage Vessel Safety Tips

The Oklahoma Department of Labor has jurisdiction over high-pressure boilers; low pressure steam and hot water boilers; other pressure vessels; and licensing requirements for firms engaged in the repair, service and installation of boilers and pressure vessels. This includes the Liquid Carbon Dioxide Storage Vessels (LCDSVs) that are being installed in increasing numbers in restaurants and similar facilities. As the numbers of these units rise, the Oklahoma Department of Labor wishes to highlight some important safety measures that need to be taken by the facilities when these units are installed.

REQUIREMENTS FOR LIQUID CARBON DIOXIDE STORAGE VESSELS

Outdoor Installations:

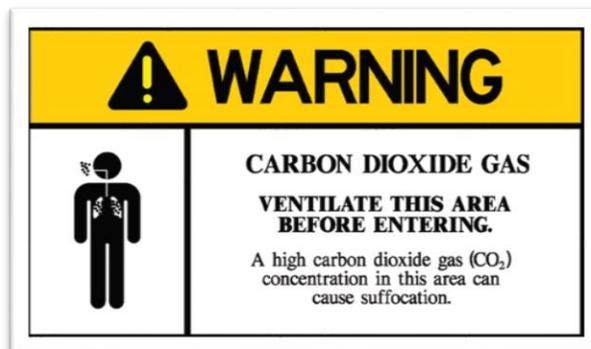
- LIQUID CARBON DIOXIDE STORAGE VESSELS (LCDSVs) installed outdoors shall have vehicle impact protection, (i.e. guards or bollards) installed in accordance with local building codes.

Indoor Installations:

- CO₂ gas detection and alarm systems with a low-level pre-alarm activation at 5,000 ppm and a full high alarm at 30,000 ppm concentration of CO₂ shall be located in rooms or areas where carbon dioxide storage vessel(s) are located.
- The fill connection for LCDSV's shall be located at least 3 feet from any door or operable window and shall not be within 10 feet from any air intakes or stairwells at the same level or below.

Signage:

- ◆ The warning sign shown below shall be posted at the entrance to the building, room, enclosure, or enclosed area where the carbon dioxide storage vessel(s) are located.



- ◆ Additional instructional signage shall be posted outside the vessel area and shall:
 - Indicate the low and high concentrations that will trigger the gas detection alarms, (5,000 ppm and 30,000 ppm respectively)
 - Indicate that personnel may only enter the area for no more than 15 minutes at the Low Level Alarm (5,000 ppm)
 - Indicate that personnel should evacuate the area if a High Level Alarm (30,000 ppm) is activated.