Safety Codes Council

CARBON DIOXIDE BULK BEVERAGE SYSTEMS

SAFETY TIPS

What are Carbon Dioxide Bulk Beverage Systems?

Carbon dioxide (CO2) bulk beverage systems are low-pressure liquid (CO2) storage containers that replace the smaller high-pressure CO2 cylinders used to carbonate beverages (e.g. dispensing soda machines). These containers are stainless steel and hold between 221 lb's (100.2 kg) to over 1000 lb's (453.6 kg) of CO2. Restaurants, bars and convenience stores have been replacing their high-pressure cylinders with bulk containers as the increased size and volume of these containers provide the convenience of not having to handle and refill the containers frequently.

The bulk containers are installed indoors or outdoors with a fill box and connection that allows for refilling 24/7.

What is Carbon Dioxide (CO2)?

CO2 is a colorless gas that is odorless at normal concentrations, but can have an acidic odor or taste at high concentrations. It is heavier than air and can displace oxygen. A person exposed to increased levels of CO2 may have the following symptoms:

- drowsiness
- sweating
- shortness of breath
- increased heart rate and blood pressure
- dizziness,
- headache,
- visual and hearing dysfunction
- unconsciousness
- suffocation
- death

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Are there any safety concerns with a bulk beverage dispensing system?

If a system is not installed and maintained correctly, there is a potential for the system to be compromised, which could result in a leak of CO2. A build up of CO2 could reach dangerous levels, if a system is installed indoors or in an enclosed outdoor area.

What are some best practice tips to maintain a safe working environment where a bulk beverage dispensing system is installed?

The following are best practice tips:

- Refer to the National Fire Code-2019 Alberta Edition (NFc(ae) for specific requirements or contact your local Fire Department for more information.
- All equipment should be certified.
- All components should be protected from damage.
- When installed indoors, rooms or areas containing components of the system should be provided with a gas detection and alarm system.
- A mechanical ventilation system should be installed for the room or area that the bulk containers are installed. These systems should have a permit and be inspected by an HVAC Safety Codes Officer.
- A warning sign stating “Carbon Dioxide” should be placed on the door leading to the room or area where the container is installed.
- Safety Data Sheets (SDS) for CO2 should be on site and be readily available.
- Containers should be labelled as per Transportation of Dangerous Goods Regulations.
- Employees should be familiar with CO2, its effects and what actions need to be taken in the event of a fire, leak or spill.
- Containers should be marked with “Carbon Dioxide” and be facing outward so everyone is able to see the markings.
- When a container is installed indoors, an emergency shutoff should be located at the point of use and at the container.

Contact

Please contact your local Fire Department for any questions regarding this Safety Tip.

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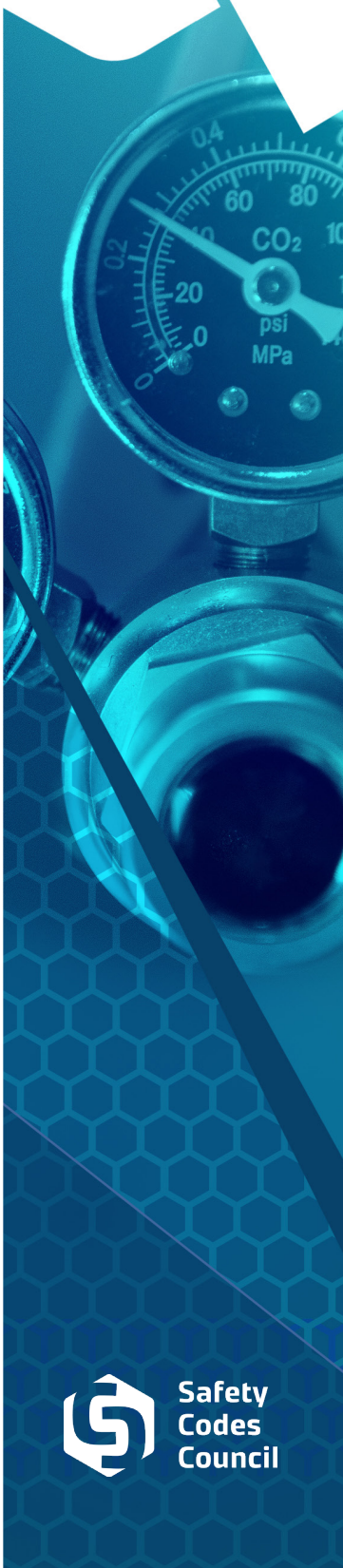
Sample of a Carbon Dioxide Detector

Sample of a Carbon Dioxide Alarm

Sample Bulk Container Set-up

Sample Bulk Container Setup



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