

CO₂ Safety Bulletin

This document is intended to inform you of the risks associated with the use of dispense gases in a food and beverage service establishment. To be used as a general guide on how to prevent gas leaks, exposure, and associated hazards.

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What is a dispense gas?

A dispense gas is simply a pressurized gas used for dispensing drinks. The gas of choice is typically carbon dioxide (CO₂)... especially for carbonated drinks such as soda and beer. Carbon Dioxide is commonly employed in the food service environment in a variety of equipment systems such as carbonation, refrigeration, and driving dispensing equipment such as beverage pumps and carbonators. A dispense gas installation includes pressurized 'gas cylinders' or 'bulk tanks' of varying sizes, together with plumbing, connections, pressure control and mixing equipment.

How is dispense gas dangerous?

If a leak occurs, dispense gas can displace oxygen and contaminate the atmosphere. Dangerous levels of exposure from concentrations as low as 4% CO₂ is considered **IDLH**. IDLH is an acronym for Immediately Dangerous to Life or Health, and is defined by the US National Institute for Occupational Safety and Health (NIOSH). These levels can be lethal and are most likely to occur in the following situations:

- Areas with poor ventilation, confined spaces, storage rooms.
- Basements and cellars where heavier gas such as CO₂ can collect and displace oxygen.
- When a large gas leak occurs or when a relatively small leak continues over a long period and remains without dispersion.
- Where larger amounts of CO₂ are stored, "bulk tanks".

The risk relating to a dispense-gas leak in a food service location such as a restaurant or cafeteria depends on many factors including the design and layout of the facility and the level of ventilation in the area. These and other hazards can be evaluated and addressed by performing a risk assessment.

Signs of and symptoms of Exposure?

Breathing in dispense gas in sufficient quantities can lead to headaches, dizziness, drowsiness. In sufficient concentration, it can cause impaired judgment, unconsciousness and even death. If you suspect gas exposure, leave the area immediately and warn people of the potential hazard. Promptly report any complaints of headaches, dizziness, and drowsiness.

What is a risk assessment?

A risk assessment is a careful examination of what could cause harm to people in the workplace. It allows you to take precautions to prevent harm from occurring.

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How do I perform a risk assessment?

Follow these five key steps as a guideline:

1. Survey the area to identify potential hazards.
 2. Determine who might be affected: employees, guests, contractors, and how.
 3. Evaluate Risks and decide if existing precautions and control measures are adequate or if more is necessary.
 4. Record Findings and implement solutions.
 5. Review assessment regularly and update as needed.
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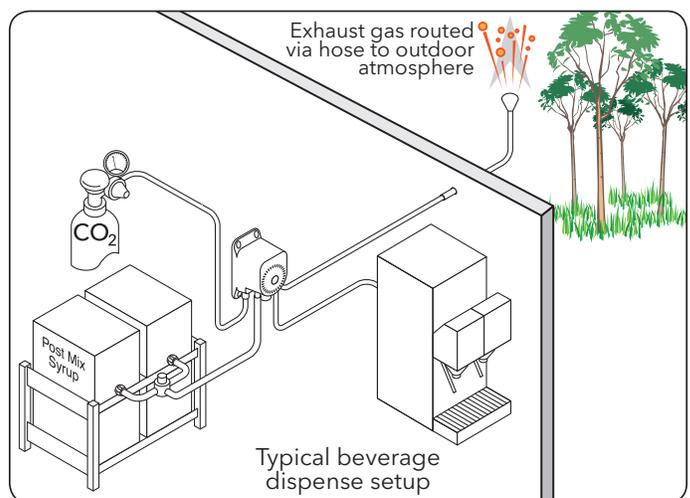
Tips for minimizing the risks:

Comply with all local governing laws for safe handling of pressurized gases. Comply with governing building codes. Comply with OSHA requirements for specific hazards and exposure levels. (or similar in country mandated occupational safety directives if not in the United States).

- Installation companies, service companies, and restaurants should have an established safety practice that all employees are trained to in order to assure workplace safety.
- Ensure that:
 - the atmosphere can be ventilated adequately with natural or mechanical ventilation, and/or
 - a gas monitoring system with warning alarm is installed.
- Make sure that warning signs are placed in a suitable location and that these signs are maintained.
- Ensure that personnel who operate the dispense-gas system are trained to follow the gas supplier's instructions (including any emergency procedures).
- Keep cylinders securely tied. Store the gas cylinders outside the building where possible. Ensure that gas line plumbing is made using suitably rated tubing and protected from damage.
- Ensure that a competent person inspects and properly maintains equipment in the facility, including safety equipment such as ventilation fans and/or a gas-monitoring system, in accordance with the product manufacturer's instructions.

Specific guidance on Beverage Dispense Pump installations...

- Pumps Connected to CO₂ or Nitrogen should only be used in well ventilated areas.
- Do not install CO₂ driven Beverage Delivery Pumps in confined spaces, basements, storage rooms, walk-in coolers without venting the pump exhaust outside the building, or use clean and dry compressed air to drive the pumps.
- If there is any question about suitability of ventilation in area where pumps are to be operated, assure each pump exhaust port is ventilated outside the building, or use clean and dry compressed air to drive the pumps. (see figure below)
- Install suitable gas monitors with visual and audible alarms in the area where the pump will be operating and / or gas is to be stored.
- Inspect for gas leaks at all gas discharge and connection points in the installation prior to initial start-up and on a regular basis during life of the installation. If any leaks are found at any time, shut down your system immediately and repair the leak(s). Always inspect entire system when restarting after any leak repair.



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