

# Confined Space

## What is a confined space?

A confined space is a work space that is enclosed or partially enclosed that is not designed or intended for people to work in for any period of time; has restricted access/egress or only one way in or out; and is a work area that may become a hazard to the person in the manner of its design, construction, location, atmosphere, material or substances that are in it or other potential hazardous conditions.

Examples of confined spaces in the Agricultural Industry include but not limited to silos, grain & feed bins, bulk milk tanks, manure storage areas, ponds, wells, silage wagons, and fuel storage tanks.



## Confined Space Hazard Assessment

Before entering a confined space, a competent person must evaluate it for potential and existing hazards. Document the hazard assessment and make it available to all workers who work in the space. When evaluating the work area, do not take into account the worker will be wearing personal protective equipment and the area may be ventilated. Do consider these as hazard controls to be used at the time of entry.

### Also include the following notes on the written hazard assessment to be kept on site:

- Name of competent person conducting the assessment.
- Levels of chemicals or physical agent found in the space.
- Testing the concentrations of chemicals and physical agents found in the space.
  - Use the correct & calibrated instrument that has been functionally tested.
  - Document the levels and instrument calibration tests on the hazard assessment or in a log book.

- Ensure concentration levels of chemicals and physical agents do not exceed occupational exposure limits (OEL).
- Testing to ensure oxygen levels are between 19.5% and 22.5%.
- Process to ensure chemical, physical agent, and oxygen levels are maintained while work is performed in the space.
- Liquid or free flowing solids are removed from the space before work starts or a procedure to deal with it, if they remain present during work.
- A process to prevent liquid or free flowing solids entering the confined space through a disconnection process, the fitting of blank flanges, or the implementation of a double block & bleed written procedure or similar.
- Lock out procedure in place for hazardous energy that could pose a hazard to the worker.
- Access/egress is adequate to allow safe passage of the worker and rescuer with their protective and emergency equipment.
- If electrical shock is a potential or existing hazard in a confined space, ensure that electrical equipment is: battery operated; double insulated; bonded to ground and not exceeding 30 v & 100 volt-amperes; or equipped with a ground fault circuit interrupter of the Class A type that complies with the latest version of CSA Standard CSA C22.1, "Canadian Electrical Code Part 1", Safety Standard for Electrical Installations" and is tested before each use.
- In areas of traffic, warning signs and barricades must be installed around the confined space to protect the person working in the confined space.

## Written Confined Space Entry Procedures

Procedures for confined space entry should be documented, workers trained on them, made available to all workers entering a confined space, kept on site where the work is to be performed, and reviewed at least once per year.

Workers are expected to follow the written procedures and use the protective and emergency equipment provided when needed.



**Develop Written Procedures for:**

- Entering the confined space.
- Rescue of a worker from the space.
- The work performed in the space.
- Personal Protective Equipment to be used for the worker and the rescuer.
- Emergency equipment to be used during a rescue.
- Incident or Emergency Response and Recording of Incidents.
  - Include alarm activation, changes in atmospheric conditions, and number of people required outside of the confined space.
- Atmospheric testing to include frequency of testing.
- Ventilation.

**Confined Space Training Requirements**

Workers entering the confined space and workers who may be required to perform a rescue operation are required to be trained in confined space entry.

Those entering the confined space require training every two years while those performing rescue operations must be trained annually.

Training Includes:
PPE specific for the hazards and space to be entered.
Review of the entry & rescue procedures.
Communication procedures between the worker in the space and the monitor outside the space during the work.
Process to enact the rescue procedure, if needed.
The work that is allowed to be performed in the space.
Process to identify hazards while working in the space.

**Certification of Conditions**

A competent person will certify through documentation the conditions tested in the confined space are likely to be

maintained within a predicted and recorded range for the period the certification is valid. The certification must be posted outside of the confined space while work is performed and a record of the certification kept for at least one year.

**The certificate of conditions document should include:**

- Signature of the competent person making the declaration.
- The day and time when the tests were performed.
- The scope of work to be performed in the space.
- Scope of work NOT permitted to be performed in the space.
- Procedure or process for how the work will be done.
- Expiry date and time of the certification.
  - This date and time must be within 24 hours of the testing day and time.
- A record of the tests performed and of the test results.

**Purging and Further Testing**

Upon testing, where the levels of the chemical, physical agent, and/or oxygen are outside the required parameters, the employer must ensure the confined space is purged until the levels are within acceptable ranges and retest levels once purging is complete.

**Response to Hazardous Conditions**

- Workers are not permitted to enter a confined space if the chemical or physical agent levels are in a concentration that is equal to or exceeds the 50% Lower Explosive Limit (LEL).
- If the concentration levels of the chemical or physical agent may cause a flammable or explosive atmosphere and the concentration is between 10% and 50% of the Lower Explosive Limit (LEL), the employer must provide explosion proof lighting and ensure workers use it, AND ensure work that can be a source of ignition is not performed.
- If the level of oxygen is above 22.5% in the confined space, work must not be performed with flammable or combustible or dangerously reactive material which fall under the Controlled Products Regulations and the Hazardous Products Act.
- If concentration levels of the chemical or physical agent exceeds 50% of the Lower Explosive Limit (LEL), measured with atmospheric conditions containing 20.9% oxygen and levels cannot be lowered to the required levels, then an employer must ensure workers entering the confined space confirm the atmosphere is inert and the worker is using appropriate personal protective equipment.

## Protective Equipment and Security Measures



The employer must provide the following to the worker before they are permitted to enter the confined space:

**Protective and emergency equipment as per hazard assessment and control.**

**Rescue equipment to include yoke and lift for an unconscious person.**

**The employer must ensure a competent worker outside of the confined space is:**

- Directly outside of the confined space.
- Able to communicate with the worker.
- Able to activate the rescue procedure, if there is an emergency.
- Trained in the emergency response procedure.
- Maintain a record of the worker in the confined space.

**The employer must provide the worker, where necessary:**

- A full body harness to be worn while working in the confined space.
- Ensure the full body harness is worn.
- Ensure the full body harness is attached to a life line as long as it doesn't present a hazard.
  - The lifeline must be secured to an anchor point and controlled by a competent person outside of the confined space.

## Respiratory Protective Equipment

The employer shall provide the correct respiratory protective equipment to the worker who enters the confined space where the chemical and physical agent levels are a hazard to the health and safety of the worker.

Positive pressure respiratory protective equipment must be provided to a worker who enters a confined space where the level of oxygen is below 19.5%.

**Positive pressure respiratory protective equipment must have either an airline and an independent 5-minute supply of air or is self-contained and equipped with an alarm that will sound when the air supply reaches 20% of capacity of the unit or where there is only a 5-minute reserve.**

### For more information:

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