

Confined Space

Confined Space - Atmospheric Testing

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What must the employer do when atmospheric testing is needed for a confined space?

The employer must make sure that a hazard assessment is performed before workers enter a confined space. Part of this assessment involves testing the atmosphere. Atmosphere testing is required before entry, during entry, and continuously throughout entry depending on the hazards and risks present.

Atmospheric testing is typically required to determine the presence of:

- Toxic gases – various chemical or biological substances
- Flammable or explosive gases
- Oxygen – too much (enrichment) or too little (deficiency)

The employer must designate [a qualified or competent person](#) to perform the tests. These tests must be done using equipment that is appropriate and calibrated according to the manufacturer's instructions.

The results of the tests must be recorded and retained.

Be aware that atmospheric testing is only one component of a [confined space entry program](#) that can help can keep workers safe when entering confined spaces.

What are the atmosphere testing requirements for confined spaces?

This table includes the main occupational health and safety legislation relevant for confined space atmospheric testing by jurisdiction. Only the legislation related to atmospheric testing is included, and the table does not include details for other required hazard and risk assessments nor the control measures that need to be taken before entering a confined space.

NOTE: Depending on the nature and potential hazards of the confined space, there may be additional requirements listed in other sections, regulations, Codes, or Acts that are not listed in this table. Always consult the legislation that applies in your situation, and with your jurisdiction for complete information.

NOTE that other requirements may be listed in other sections, regulations, Codes, or Acts that are not listed in this table. For more details, consult the legislation directly. For an interpretation of the legislation, please contact the authority in your [jurisdiction](#).

Below is a table for guidance purposes that lists legislation and a general summary of elements of atmospheric testing in a confined space.

Table 1 Main Sources of Legislation regarding Confined Space Atmospheric Testing

Jurisdiction	Legislation Related to Confined Space Atmosphere Testing	Elements (general summary)
Alberta	Occupational Health and Safety Code (2021) Part 5, Confined Spaces Section 52: Testing the atmosphere	<p>When there is a potential atmospheric hazard, or when a worker must enter a confined space, the employer must make sure a competent person performs a pre-entry atmospheric test to verify oxygen, and identify the amount of toxic, flammable, or explosive substance that may be present. Appropriate and calibrated test instruments must be used according to the manufacturer's directions.</p> <p>The employer must ensure that additional tests are performed as often as necessary after the first time a worker enters the confined space.</p> <p>The employer must make sure that if there is a potential for the atmosphere to change unpredictably after a worker enters the confined space, the atmosphere is continuously monitored.</p>
British Columbia	Occupational Health and Safety Regulations, Part 9: Confined Spaces Section 9.1: Definitions (clean respirable air, high hazard atmosphere, low hazard atmosphere, moderate hazard atmosphere) Section 9.25: Testing the atmosphere	OHS Regulations: The employer must make sure the atmosphere in a confined space is tested according to the regulation. Pre-entry testing must be done as specified in written work procedures, and completed not more than 20 minutes before a worker enters a confined space. When all workers have vacated the

	<p>Section 9.26: Procedures and equipment</p> <p>Health, Safety and Reclamation Code for Mines in British Columbia (2021), Part 3 - Hazardous Atmosphere - Confined Space</p> <p>Section 3.4.3: Test of Confined Space</p> <p>Section 3.4.4: Test of Intervals</p> <p>Section 3.4.5: Confined Space Ventilation</p> <p>Section 3.4.6: Wearing of Protective Equipment</p>	<p>confined space for more than 20 minutes, pre-entry testing must be repeated. Some situations may not require pre-entry testing.</p> <p>Additional testing must be conducted as necessary while workers are in the space if there is a moderate or high hazard atmosphere. Where practical, use continuous monitoring. Continuous monitoring must be used if a flammable or explosive atmosphere of more than 20% of the lower explosive limit may develop.</p> <p>Each test must be done by a qualified person, and specific data must be recorded.</p>
<p>Manitoba</p>	<p>Workplace Safety and Health Regulation, Man. Reg. 217/2006, Part 15: Confined Spaces</p> <p>Section 15.3: General requirements</p> <p>Section 15.9: Purging and ventilating unsafe atmosphere</p>	<p>General requirement to identify and assess the risks, including to identify the appropriate type and frequency of tests needed, and to make sure the tests and inspections are completed by a competent person.</p> <p>Purging, ventilation, or both (and therefore, testing) is required when there is or may be flammable or explosive substances, an oxygen deficiency or oxygen enrichment, or a chemical or biological substance that creates a risk to the worker.</p>

		<p>When a worker occupies a hazardous confined space that has an atmosphere that may create a risk to the safety or health of a worker, the employer must ensure continuous monitoring of the atmosphere.</p>
<p>New Brunswick</p>	<p>Occupational Health and Safety Act, N.B. General Regulation, Reg. 91-191, Part XVII, Confined Space Section 263: Testing, protective equipment, and entry Section 264: Purging Section 265: Monitoring while employee in confined space</p>	<p>The employer must assign a competent person to verify, by tests, that concentrations of airborne chemical agents or dust are not hazardous to employees and do not exceed lower explosive limits, that levels of physical agents are not hazardous to employees, and that oxygen levels are within the prescribed range. Verification by tests must also be done to ensure the above concentrations, levels and percentages can be maintained during the entire time an employee will be in the confined space. The competent person must use appropriate and calibrated instruments. Specific results and an evaluation of the hazards in the confined space must be recorded in a written report.</p> <p>Tests are to be done again after the space has been purged.</p> <p>Continuous monitoring is required when there is uncertainty that the levels can be maintained or when there is a possibility a hazard may occur.</p>
<p>Newfoundland</p>	<p>Occupational Health and</p>	<p>Tests are required and must be</p>

<p>and Labrador</p>	<p>Safety Regulations, 2012, N.L.R. 5/12, Part XXVII: Confined Space Entry Section 512: Corrective precautions Section 515: Explosives or flammable atmosphere</p>	<p>recorded before entry, after interruption in work procedures, and at appropriate intervals for harmful vapours, gasses, fumes, mists, dusts, or explosive substances, and oxygen deficiency. Tests must be performed by a person who has been adequately trained in the proper use of testing and monitoring equipment. Equipment used must be calibrated and monitored according to the manufacturer's instructions. Continuous monitoring is required when hot work is being done when an explosive or flammable atmosphere is present (oxygen levels and lower explosive limits must be within prescribed ranges).</p>
<p>Northwest Territories and Nunavut</p>	<p>Occupational Health and Safety Regulations, R-039-2015, Part 18: Confined Space Entry: Section 277: Requirements before hazardous confined space entered Section 280: Purging and ventilating of unsafe atmosphere Section 281: Precautions if safe atmosphere not possible</p> <p>Mine Health and Safety Regulations, R-125-95, Part VIII - Division 2, Confined Spaces: Sections 8.29 and 8.30: Test of Atmosphere in Confined Space</p>	<p>OHS Regulations: Before entry, a competent individual must assess the hazards, test the atmosphere if a hazard is present for oxygen enrichment or deficiency, presence of flammable or explosive substances, and hazardous airborne chemical substances. Must use appropriate and properly calibrated instruments that have been tested to make sure the instruments operate safely and effectively. Prepare a report of results, recommended special precautions, and recommended personal protective equipment.</p>

		<p>If ventilation is used to reduce or eliminate a hazard, the atmosphere must be tested before workers enter the space, before re-entry (if all workers vacate the space), and on the request of a worker who is required or permitted to enter the space.</p> <p>Continuous monitoring is required if the confined space cannot be purged and ventilated appropriately, or if a condition in the space could change and put the workers' health and safety at risk.</p>
<p>Nova Scotia</p>	<p>Occupational Safety General Regulations, N.S. Reg. 44/99, Part 12: Confined Spaces</p> <p>Section 130: Assessment and written procedures</p> <p>Section 131: Certification of confined space conditions</p> <p>Section 132: Purging and further testing</p> <p>Section 133: Response to hazardous condition</p>	<p>Employer must establish procedures for testing the confined space, at regular intervals and on a continuous basis if needed.</p>

		<p>Before entry, a competent person must perform assessment for chemical substance(s) to make sure concentrations do not exceed prescribed limits (exposure and explosive limits), and to make sure oxygen levels are safe. Where physical agents may be a hazard, tests must be done to confirm levels are safe. All tests must be done using appropriate and properly calibrated instruments that have been functionally tested. Maintain records of the functional and calibration tests. After performing the tests, the competent person must certify, in writing, that the conditions tested are likely to be maintained for the time the certification is valid. The tests are to be used to determine if purging and further testing is required.</p>
<p>Ontario</p>	<p>O. Reg. 632/05: Confined Spaces Section 1: Definitions (acceptable atmospheric levels) Section 18: Atmospheric testing Section 19: Explosive and flammable substances Section 20: Ventilation and purging</p>	<p>A person with adequate knowledge, training and experience must perform adequate tests as often as necessary, including before and while a worker is in a confined space. Testing must be done before a worker re-enters the space. Record test results, including at adequate intervals when continuously monitoring. Use calibrated instruments that are in good working order and appropriate for the hazards present. Conduct testing in a way that does not endanger the person performing them.</p>

		Continuous monitoring of atmosphere is required when hot work is performed in the confined space.
Prince Edward Island	<p>Occupational Health and Safety Act General Regulations, E.C. 180/87, Part 13: Confined Spaces</p> <p>Section 13.2: Conditions for entry of confined space</p> <p>Section 13.3: Hazardous confined space, conditions for entry</p> <p>Section 13.4: Confined space containing flammable vapours</p>	The confined space must be tested and evaluated by a competent person (equipped with personal protective equipment) who uses an approved calibrated instrument that has been functionally tested, records the test results, certifies (in writing) the confined space is free from hazard, and specifies the procedures to follow to make sure the space remains free from hazards. Provisions for continuous or periodic monitoring are needed to make sure the hazardous condition does not recur. Prescribed lower explosive limits must not be exceeded if flammable or explosive gas/vapours are or may be present, or when cold work is being done.
Quebec	<p>Regulation Respecting Occupational Health and Safety (S-2.1, r.13)</p> <p>Section 1: Definitions (enclosed area)</p> <p>Division XXVI: Working in an enclosed area</p> <p>Section 300: Gathering information before work</p> <p>Section 302: Ventilation</p> <p>Section 306: Method and frequency of readings</p> <p>Section 307: Register of readings</p>	<p>Regulation respecting OHS:</p> <p>Information must be documented, in writing, and implemented about the prevailing internal atmosphere and other factors (including oxygen concentration, inflammable gases and vapours, combustible or explosive dusts and other contaminants). This information must be collected by a qualified person.</p> <p>Readings of the above concentrations and contaminants and other substances</p>

	<p>Safety Code for the Construction Industry, CQLR c. S-2.1, r. 4, 3.21: Work in Confined Space Section 3.21: Working in confined space Section 3.21.3: Concentration readings</p>	<p>measurable by direct reading and likely to be present in or near the enclosed area must be made before a worker enters the enclosed area, and on a continuous or periodic basis, according to the evaluation of the danger made by a qualified person. Readings must also be taken when circumstances change the internal atmosphere and require an evacuation, and when workers leave the area or site, unless continuous monitoring is maintained.</p>
<p>Saskatchewan</p>	<p>Occupational Health and Safety Regulations, 2020, S-15.1 Reg 10, Part 18: Confined Space Entry Section 18-5: Requirements before hazardous confined space is entered Section 18-8: Purging and ventilating of unsafe atmosphere</p>	<p>Before a worker enters a confined space, a competent person must assess the hazards, and, when identified, test the atmosphere for oxygen, flammable or explosive substances, and airborne chemical substances. The competent person must also determine if the work activities will result in a change to the atmosphere. Appropriate and properly calibrated instruments that have been tested to show they are operating safely and effectively must be used. A written report must be prepared. Testing must be done at specific times when ventilation is used. This testing includes before entry, before re-entering after the space has been vacated, on the request of a worker who is required or permitted to enter the space, and continuously if any condition in the confined space</p>

		may change and put the worker's health and safety at risk.
Yukon	<p>Occupational Health and Safety Regulations (O.I.C. 2006/178)</p> <p>Part 2: Confined Spaces</p> <p>Section 2.01: Definitions (clean respirable air, high hazard atmosphere, low hazard atmosphere, moderate hazard atmosphere)</p> <p>Section 208: Hazard Assessment and Work Procedures</p> <p>Section 2.18: Verifying precaution</p> <p>Section 2.19: Pre-entry testing</p> <p>Section 2.20: Moderate or high hazard</p> <p>Section 2.21: Cleaning, purging, venting</p> <p>Section 2.22: Risk Control</p> <p>Part 17: Oil and Gas Industry</p> <p>Section 17.01: Definitions (lower explosive limit)</p> <p>Section 17.80: Cleaning and repairing tanks or vessels</p>	<p>OHS Regulations: A qualified person must conduct a hazard assessment and prepare written procedures. The assessment includes testing the atmosphere for oxygen, flammable gas, vapour or mist, combustible dust, or other hazardous atmospheres. Testing must be done less than 20 minutes before the worker enters the space, and repeated if the space has been vacated for more than 20 minutes. Use equipment maintained according to manufacturer's instructions. Record results, and post without delay unless using continuously monitoring. When a worker is inside a confined space with a moderate or high hazard atmosphere, additional testing is to be conducted as necessary to make sure the worker is safe. Continuous monitoring is also required when practicable, and where a flammable or explosive atmosphere in excess of 20% of the lower explosive limit could develop.</p>
Canada (Federal)	<p>Canada Occupational Safety and Health Regulations [COHSR] (SOR/86-304) Part XI: Confined Spaces</p> <p>Section 11.05: Verification before entry in and during occupancy of hazardous confined space</p>	<p>COHSR: No person can enter a confined space unless a qualified person has verified by tests or continuous monitoring, that if the atmosphere could be of concern, compliance with the prescribed atmospheric conditions can be achieved while the person is in the space. Testing includes for chemical agents, lower explosive</p>

<p>Maritime Occupational Safety and Health Regulations (SOR/2010-120) Part 14: Confined Spaces Section 171: Assessment of condition</p> <p>Oil and Gas Occupational Safety and Health Regulations (SOR/87-612) Part XII: Confined Spaces Section 12.2: General</p>	<p>limits, and oxygen levels. The equipment used must be calibrated and maintained according to the manufacturer's instructions. Reports can be paper or electronic.</p>
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Where can I find more information?

More information is available from OHS Answers:

- [Confined Space - Introduction](#)
- [Confined Space - Program](#)
- [Occupational Hygiene](#)
- [Industrial Ventilation](#)

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