

# Compressed Gases – Know The Laws Of Your Province



**OHS laws require safe handling and storage of compressed gas cylinders.**

OHS laws require employers to take measures to ensure safe storage and handling of compressed gas cylinders. In addition to serious and even fatal injury, failure to comply with OHS requirements can also lead to fines, stop-work orders and other enforcement actions. Here are the specific safety rules in each part of Canada.

## Compressed Gas Storage and Handling Rules Across Canada

### FEDERAL

Compressed gases must be stored and handled in accordance with sections 3.2.8 and 3.3.5 of the National Fire Code (*COHS Regs.*, Secs. 10.48)

### ALBERTA

**Employer must ensure that:** (a) Compressed or liquefied gas containers are used, handled, stored and transported in accordance with manufacturer's specifications; (b) A cylinder of compressed flammable gas isn't stored in the same room as a cylinder of compressed oxygen (unless storage arrangements meet Part 3 of Alberta Fire Code (1997)); (c) Compressed or liquefied gas cylinders, piping and fittings are protected from damage during handling, filling, transportation and storage; (d) Compressed or liquefied gas cylinders are equipped with a valve protection cap if manufactured with a means of attachment; (e) Oxygen cylinders or valves, regulators or other fittings of the oxygen-using apparatus or oxygen-distributing system are kept free of oil and grease; (f) A compressed or liquefied gas system isn't exposed to heat sources that generate temperatures that may: (i) result in the failure or explosion of the contents or system, or (ii) exceed the maximum exposure temperatures specified by the manufacturer; (g) A compressed or liquefied gas system is kept clean and free from oil, grease and other contaminants that may: (i) cause the system to fail, or (ii) burn or explode if they come in contact with the contents of the system; (h) On each hose of an oxygen fuel system (i) a flashback device is installed at either the torch end or the regulator end, and (ii) a back-flow prevention device is installed at the torch end; (i) Compressed or liquefied gas cylinders

are secured, preferably upright, and can't fall or roll, unless a professional engineer certifies another method that protects against the hazards caused by dislodgment'however, a cylinder containing acetylene **must be** secured and stored upright (*OHS Code*, Secs. 171(1) to (7))

**Worker must ensure that:** (a) Compressed gas equipment designed to be used with a specific gas is used only with that gas; (b) The cylinder valve is shut off and pressure in the hose is released when cutting or welding isn't in progress; (c) Sparks, flames or other sources of ignition aren't allowed to contact the cylinders, regulators or hoses of a compressed or liquefied gas system (*OHS Code*, Sec. 171(8))

**Cylinder storage:** Employer must ensure that: (a) A compressed gas cylinder that's horizontal when it's transported or used in a vehicle: (i) is in a storage compartment that incorporates a structure of sufficient strength to prevent the cylinder from passing through it should the valve end of the cylinder be damaged and vent its contents in an uncontrolled manner, (ii) is in a storage compartment that incorporates a means of securing the cylinder that stops the cylinder from moving within the compartment and that puts the bottom of the cylinder in direct contact with the structure in clause (a), and (iii) is protected against scoring during insertion into, and removal from, the storage compartment; (b) The regulator on a compressed gas cylinder that's horizontal when transported or used in a vehicle is protected from damage by other equipment in the storage compartment; and (c) A storage compartment on a vehicle from which welding services are provided is certified by a professional engineer as meeting the above requirements (*OHS Code*, Sec. 173)

**Cylinder handling:** Worker must: (a) Not insert or remove a compressed gas cylinder from a storage compartment by holding the valve or valve protection cap; (b) Put on and secure to the valve outlet the valve protection cap or plug provided by the manufacturer of a compressed gas cylinder if the cylinder isn't secured and not connected to dispensing equipment; (c) If a welding service vehicle isn't in service for any reason: (i) close the compressed gas cylinder valves, (ii) remove the regulators if they're not integral to the cylinders, and (iii) put on and secure the valve protection caps or plug; and (d) Shut off the cylinder valve and release the pressure in the hose if a compressed gas cylinder on a welding service vehicle isn't in use or the vehicle is left unattended (*OHS Code*, Sec. 174)

## **BRITISH COLUMBIA**

**Containers:** A tank, cylinder, bottle or other vessel containing a substance under pressure, together with any associated pressure or flow regulator and piping or conveyance system, must be: (a) Protected from sparks, flames, excessive heat, physical damage, electrical contact or corrosion, and (b) Equipped with suitable pressure relief mechanisms installed so that no worker will be endangered in case of discharge (other than hand-held aerosol spray cans (*OHS Reg.*, Sec. 5.36); A compressed gas container requiring pressure testing must have valid and current indication that it's been pressure tested (*OHS Reg.*, Sec. 5.37)

**Cylinders:** (a) A compressed gas cylinder must: (i) not be hoisted by a sling or magnet, dropped, subjected to impact, handled by the regulator or used as a roller or work support, (ii) be secured to prevent falling or rolling during

storage, transportation and use, and where practicable, kept in upright position, and (iii) Be marked to indicate its rated pressure and type of gas it contains (*OHS Reg.*, Sec. 5.38); (b) The valve on a compressed gas cylinder must be kept closed when the cylinder is empty or not in use; (c) Worker may not stand directly in front of a regulator attached to a compressed gas cylinder when the cylinder valve is being opened; (d) Any valve, regulator or fitting connected to a compressed gas cylinder must be a standard fitting, designed and manufactured for the type of cylinder and compressed gas for which it's used, and must include provisions for flashback arresters where necessary; (e) Unless a compressed gas cylinder is equipped with an integral valve guard, the valve cover must be in position when the cylinder isn't connected for use (*OHS Reg.*, Sec. 5.40); (f) An empty compressed gas cylinder must be identified as being empty and stored separately from other compressed gas cylinders (*OHS Reg.*, Sec. 5.43); and (g) Cylinder of compressed gas not allowed inside a confined space (except for a cylinder of compressed air supplied to a respirator, medical resuscitation equipment, handheld aerosol spray containers, fire extinguishers, or other equipment permitted by the Board) (*OHS Reg.*, Sec. 9.48)

**Acetylene cylinders:** (a) A compressed gas cylinder containing acetylene must be used **only** in the upright position; (b) If the cylinder has been stored or transported in a horizontal position, it must be placed in the upright position for at least 1 hour before use; (c) A suitable device for closing the valve on an acetylene cylinder must be immediately available when the cylinder is connected for use; and (d) A fitting or tube made of copper or any alloy containing more than 67% copper must not be used in a system carrying acetylene gas, except for copper torch tips and lengths of copper tubing 30 cm (1 ft) or less in length which are open to the atmosphere(*OHS Reg.*, Secs. 5.44 and 45)

## MANITOBA

Employer must ensure that compressed gas cylinders are stored in accordance with Manitoba Fire Code (*WSH Reg.*, Sec. 19.10)

## NEW BRUNSWICK

**Employer must ensure that (starred duties are those for which the employer and employee are both responsible):** (a) A portable compressed gas container is used, stored and handled so as not to endanger an employee's health or safety in accordance with: (i) information on an SDS, (ii) the supplier's specifications, and (iii) the safe handling rules in CGA G-P-1-1991, 'Safe Handling of Compressed Gases in Containers' (*OHS Gen. Reg.*, Sec. 75); (b) A portable compressed gas container is stored: (i) in a well ventilated and dry storage area where the temperature doesn't exceed 52°C, (ii) with containers grouped by types of gas and the groups arranged to take into account the gases contained, (iii) with full and empty containers in separate areas, and (iv) secure and upright (*OHS Gen. Reg.*, Sec. 76); (c)\* A portable compressed gas container: (i) isn't stored near readily ignitable substances, (ii) is kept at a safe distance from all operations that produce flames, sparks or molten metal or result in excessive heating of the container, (iii) isn't exposed to corrosive materials or corrosion-aiding substances, and (iv) is protected from falling and from having heavy objects fall on it (*OHS Gen. Reg.*, Sec. 76(2)); (d) A storage area for portable compressed gas containers is prominently posted with the name of the gases stored and signs banning smoking (*OHS Gen. Reg.*, Sec. 76(3)); (e) A portable compressed gas container isn't: (i) rolled on its side, dragged, slid

or rough handled, or (ii) moved by a lifting magnet; (f) Where appropriate lifting mechanisms aren't provided, suitable cradles or platforms for holding the container are used for lifting (*OHS Gen. Reg.*, Sec. 77); (g)\* Regulators, automatic reducing valves, gauges, hoses and other appliances provided for use with a particular gas or group of gases aren't used on a portable compressed gas container containing a gas with different chemical properties unless information obtained from the supplier of the portable compressed gas container says this can be done safely; (h) Connections on a portable compressed gas container to piping, regulators and other appliances are kept tight to prevent leakage and that connections that don't fit aren't forced; (i) Valves on a portable compressed gas container are kept closed at all times whether the container is charged or empty, except when: (i) gas is flowing from the container, (ii) the gas in the container is maintaining pressure in a supply line, or (iii) the container is on stand-by during and between operations using the gas, and (j) check valves for a portable compressed gas container are installed as close as possible to fuel gas and oxygen regulators (*OHS Gen. Reg.*, Sec. 78)

## **NEWFOUNDLAND**

(a) A compressed gas cylinder must be: (i) secured during storage, transportation or use, and (ii) stored, transported and used only in accordance with the manufacturer's instructions, applicable CSA and NFPA standards and applicable legislation; and must not be hoisted by slings, dropped or subjected to impact; and (b) A cylinder valve must be closed and a hose drained when work is finished or when a cylinder is empty, and a valve protection cover must be kept in position when a cylinder isn't connected for use (*OHS Regs.*, Sec. 450)

## **NOVA SCOTIA**

Employer must ensure that a 'portable compressed gas cylinder' (i.e., a cylinder with a water capacity of 450 kg or less that contains or is intended to contain a compressed or liquefied gas): (a) Is stored: (i) in a well-ventilated storage area where the temperature doesn't exceed 52°C, (ii) with cylinders grouped by types of gas with the groups arranged to take into account the gases contained, (iii) with full and empty cylinders separated, (iv) at a safe distance from all operations that produce flames, sparks or molten metal or result in excessive heating of the cylinder, (v) securely, and (vi) with protective devices in place; (b) Is not exposed to corrosive materials or corrosion-aiding substances, and protected from falling and from having objects fall on it (*Occ. Safety Gen. Regs.*, Sec. 47); (c) Is safely transported, i.e.: (i) is securely fastened and in an upright position during transportation, unless designed for transport in another orientation, (ii) has a protective cap attached or located on the cylinder or the cylinder is positioned in a way that provides an equivalent level of safety during transportation, and (iii) is transported in a way that prevents damage to the cylinder and its components (*Occ. Safety Gen. Regs.*, Sec. 49); (d) Employer must prominently post in a storage area for portable compressed gas cylinders the names of the gases stored and signs banning smoking (*Occ. Safety Gen. Regs.*, Sec. 47); (e) No person may: (i) roll a portable compressed gas cylinder on its side, (ii) subject it to rough handling, or (iii) move it with a lifting magnet (*Occ. Safety Gen. Regs.*, Sec. 48); and (f) If appropriate lifting mechanisms aren't provided on a portable compressed gas cylinder, must ensure that suitable cradles or platforms for holding the cylinder are used for lifting it (*Occ. Safety Gen. Regs.*, Sec. 49)

## ONTARIO

**Industrial Establishments:** A storage cylinder for compressed gas must: (a) Have a valve connection that prevents an inadvertent connection which would result in a hazardous mixture of gases; (b) Be secured in position during transportation, storage or use; (c) Have the valve protection cap in position when the cylinder isn't in use; (d) Be in an upright position if it contains acetylene; and (e) Be protected from physical damage (*Ind. Ests. Regs.*, Sec. 49)

**Construction:** (a) A storage cylinder for compressed gas must be secured in an upright position; (b) The control valve of a storage cylinder for compressed gas (other than a cylinder connected to a regulator, supply line or hose) must be covered by a protective cap that's secured in proper position; (c) A spent storage cylinder may not be stored inside a building (*Const. Proj. Regs.*, Sec. 42); (d) A portable container used to store or transport flammable liquids: (i) must be approved for use for that liquid by a recognized testing lab, and (ii) must have a label stating the use for which the container is approved and the name of the testing lab which gave the required approval (*Const. Proj. Regs.*, Sec. 43); (e) Signs must be posted in prominent locations and in sufficient numbers to warn workers of a hazard on a project and must: (i) contain the word 'DANGER' written in legible letters at least 150 mm in height and state that entry by any unauthorized person to the area where the hazard exists is forbidden, and (ii) be posted adjacent to a hoisting area, under a boatswain's chair or a suspended work platform, at the outlet from a chute, at a means of access to a place where there may be a noxious gas, vapour, dust or fume, noxious substance or a lack of oxygen, and where there's a potential hazard from an energized overhead electrical conductor at more than 750 volts; and (f) No person may enter an area where a sign is posted other than a worker authorized to work in the area (*Const. Proj. Regs.*, Sec. 44)

## PRINCE EDWARD ISLAND

Employer must ensure that: (a) Cylinders for compressed, liquefied and dissolved gases, their fittings and attachments are used in accordance with the Fire Prevention Act; (b) Cylinders containing flammable compressed gas aren't stored in areas where welding or cutting operations are carried out, or in areas containing oxygen cylinders, unless they're separated by a fire resistant partition having a fire-resistance rating of at least 2 hours; (c) Compressed gas cylinders are: (i) kept in an upright position and secured against falling during storage, transportation and use, and (ii) not dropped or subjected to impact; (d) Empty compressed gas cylinders are: (i) are stored in an area designed for such use, and (ii) are removed from any building or structure being constructed, or renovated or demolished; (e) Cylinders containing flammable gas aren't stored in a building or structure being constructed, or renovated or demolished; (f) Acetylene and oxygen cylinders when in an upright position must be held by straps, collars or chains to prevent them from falling over, and such cylinders must not be dropped or subjected to heavy blows; and (g) Removal devices for holding cylinders must be such that cylinders can be rapidly removed in case of fire (*OHS Gen. Regs.*, Sec. 37)

## QUÉBEC

(a) All compressed gas cylinders must: (i) comply with the *Act respecting pressure vessels* and its regulations, (ii) be kept away from any source of heat

and not exposed to temperatures above 50°C, (iii) be used only for the purposes for which they're designed, (iv) be handled in such a way as not to damage them, and be fastened upright or held in a cart when in use, (v) be kept in an upright position with the valves facing upwards and be solidly held in place, and (vi) be equipped with a protective cap for the valves when not connected for use (*OHS Reg.*, Sec. 77); (b) Compressed gas cylinders linked in a series via a collector must be supported, held together and form a unit by means of a rack or other frame designed for such purpose, and the cocks and safety valves must be protected from being accidentally bumped or knocked (*OHS Reg.*, Sec. 78); (c) The protective cap or valve collar may not be used for raising a compressed gas cylinder unless the collar is specifically designed for such purpose (*OHS Reg.*, Sec. 79); and (d) Non-reusable propane gas cylinders must be stored in compliance with paragraph 9.5.6 of Propane Installation Code, CAN/CGA B149.2-M91 (*OHS Reg.*, Sec. 80)

## **SASKATCHEWAN**

Employer, contractor or owner must ensure that: (i) no material or equipment is placed, stacked or stored so as to constitute a hazard to workers, and (ii) stacked materials or containers are stabilized, if necessary, by interlocking, strapping or other effective means of restraint (*OHS Regs.*, Sec. 9-18)

## **NORTHWEST TERRITORIES & NUNAVUT**

Employer must ensure that: (i) material or equipment isn't placed, stacked or stored so as to constitute a hazard to workers, and (ii) stacked material or containers are stabilized, if necessary, by interlocking, strapping or other effective means of restraint (*OHS Regs.*, Sec. 135)

## **YUKON**

A portable compressed gas container must be handled, stored, used and disposed of in accordance with: (i) the manufacturer's instructions and specifications, and the safe handling rules in CGA P-1-1984, *Safe Handling of Compressed Gases in Containers*, or other similar standard acceptable to the director (*OHS Regs.*, Sec. 8.20)