

AUTOMATED CYLINDER EXCHANGE MACHINES

PURPOSE

Cylinder exchange systems require a system, activated by a fusible link that is designed to create a temporary inert atmosphere in the cabinet. Challenges with interpreting the current code have been identified as creating instances where current cylinder exchange systems available may be difficult to design and install in order to ensure compliance. Defining minimum ventilation requirements may prevent an incident and impact the need for suppression. This requirement with the other applicable prescriptive code requirements may provide for an equal or greater level of safety. It is anticipated that there will be code requirements amended to align with this variance for the publication of the 2020 versions for the B149.2-*Propane storage and handling code*.

DISCUSSION

This variance is based on sentence 6.5.2.6.2(f) of the B149.2-15 and proposed amendments to the intent of the clause in the B149.2-15, which have been supported by the CSA standing committee, the Interprovincial Gas Advisory Council, and supported by the Safety Codes Gas Sub Council. The original wording was an impractical requirement for the protection of automated cylinder exchange machines. The intent of the code change is to ensure the automated exchange machines would operate in a safe and sustainable manner.

CODE REFERENCES

B149.2-15 *Propane storage and handling code*

6.5 Storage and use of cylinders at locations other than filling plants

6.5.1.14

When cylinders are enclosed in a cabinet, cage, or other means not covered under Clause 6.5.2.6 or Clause 6.5.10, the confinement means shall

- (a) be supplied with a top cover;
- (b) be made of noncombustible material and be structurally sound, with no openings greater than 4 in² (25.8 cm²);
- (c) have at least 2 sides constructed to provide equal ventilation through openings at the top and bottom of the side providing, as a minimum, the equivalent total opening of 15% open area on each side panel;
- (d) not restrict the dispersion of any fuel gas leak to ensure it is well ventilated;
- (e) have its base on a firm level footing in an upright position; and
- (f) not be located against other objects, or have objects attached, that restrict ventilation.

6.5.2.6.2 Automated cylinder exchange machine

Cylinder exchange stations that include an automated vending system for exchanging cylinders shall comply with the following additional requirements:

Issue of this STANDATA is authorized by
the Provincial Gas Administrator

[Original Signed]
Sidney Manning



- (a) The automated cylinder exchange machine shall only permit access to a single cylinder per individual transaction.
- (b) Cabinets storing cylinders shall be designed such that cylinders can only be placed inside when they are oriented in the upright position.
- (c) Devices operating door releases for access to stored cylinders may be permitted to be pneumatic, mechanical or electrically powered.
- (d) A manual override control shall be permitted for use by authorized personnel. On an automated cylinder exchange machine, the vending system shall not be capable of returning to automatic operation after a manual override until the system has been inspected and reset by authorized personnel.
- (e) Inspections shall be conducted by authorized personnel to verify that all cylinders are secured, access doors are closed, and the automated cylinder exchange machine has no visible damage or obvious defects that necessitate placing the station out of service.
- (f) There shall be a system, activated by a fusible link, designed to create a temporary inert atmosphere in the interior of the cabinet.
- (g) The system shall be equipped with a propane detector, and if the system detects a propane leak, the automated cylinder exchange machine will put itself in an out of service condition and send an e-mail notification to the supplier.
- (h) The area where the automated cylinder exchange machine is located shall be illuminated.
- (i) All moving mechanisms in the automated cylinder exchange machine shall be of non-sparking construction.

APPLICATION

This variance applies to propane distributors for the installation of automated cylinder exchange systems under the scope of the B149.2-15 Propane storage and handling code.

VARIANCE

Section 6 of the Gas Code Regulation (**AR 111/2010**) states:

6 CSA Standard B149.2-15 *Propane storage and handling code*, published in August 2015 by the Canadian Standards Association is declared in force.

The clause below as referenced in the B149.2-15, *Propane storage and handling code* shall be varied to read;

6.5.2.6.2(f) The automated cylinder exchange machine shall be well ventilated through means of free or forced ventilation and have six or more air changes per hour, or meet clause 6.5.1.14(c).

6.5.2.6.2(g) The system shall be equipped with a propane detector, and if the system detects a propane leak, the automated cylinder exchange machine will put itself in an out of service condition and send an e-mail or electronic notification notification to the supplier.

This variance expires March 1, 2021.

This variance provides approximately equivalent or greater safety performance with respect to persons and property as that provided for by the Safety Codes Act.

This VARIANCE is applicable throughout the province of Alberta.