



# CSA/ANSI B149.6:20 National Standard of Canada American National Standard



## Code for digester gas, landfill gas, and biogas generation and utilization



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# Preface

This is the second edition of CSA/ANSI B149.6, *Code for digester gas, landfill gas, and biogas generation and utilization*. It supersedes the previous edition published in 2015.

The major changes to this edition include the following:

- The Scope was amended to clarify code coverage and exclusions.
- Several definitions were added, e.g., qualified personnel, relief device, safe location (for venting of gas), and valve proving system (VPS).
- Several definitions were clarified, e.g., biogas (removed the heating content reference), hazardous area (harmonized with applicable codes), sludge holding tank, stand-alone membrane gasholder, tank-mounted membrane gasholders, and test firing (firing valve).
- Compliance with the requirements of this Code for the installation at landfills upstream of the main inlet valve on the vacuum side of the blower has been removed from the scope of this Code.
- Flexible metallic hose was allowed to be used to connect piping to other than appliances.
- The requirement for a lock-up positive shut-off pressure regulator upstream of an appliance valve train was removed from Code.
- The requirement for a flame arrester upstream of the relief valve on a gas storage container that is designed to store gas at a pressure above 100 kPag (14.5 psig) has been removed.
- Examples for hazardous area were expanded to include odour control, equipment, components open-type gas compressors, or blowers.
- Requirement of having an automatic safety shut-off valve certified to ANSI Z21.21/CSA 6.5 and marked C/I to shut-off the landfill gas supply to a waste gas burner that is not equipped with safety shut-off valve(s) was added to the Code.
- Landfill pipe slope percentage was removed from the Code.
- Testing method for membrane gasholders used in biogas installation has been modified.
- Some of the revisions in Annexes include revised requirements for pressure test point (Clause [D.2.8](#)), manual shutoff valves (Clause [D.2.11.1](#)), and valve proving system (Clause [D.2.16](#)), clarified requirements when a test firing valve (Clause [D.2.11.9](#)) or a check valve (Clause [D.3.4](#)) might not be required, etc.

This Code was prepared by the Technical Committee on Biogas Generation and Utilization, under the jurisdiction of the Strategic Steering Committee on Fuel and Appliances, and has been formally approved by the Technical Committee. This Code has also been formally approved by the Interprovincial Gas Advisory Council.

This Code has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

This Code has been approved by the American National Standards Institute (ANSI) as an American National Standard.

## Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this Code is stated in its Scope, it is important to note that it remains the responsibility of the users of the Code to judge its suitability for their particular purpose.*
- 3) *This Code was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Code.*

- 4) To submit a request for interpretation of this Code, please send the following information to [inquiries@csagroup.org](mailto:inquiries@csagroup.org) and include "Request for interpretation" in the subject line:
- define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
  - provide an explanation of circumstances surrounding the actual field condition; and
  - where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at [standardsactivities.csa.ca](http://standardsactivities.csa.ca).

- 5) This Code is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to [inquiries@csagroup.org](mailto:inquiries@csagroup.org) and include "Proposal for change" in the subject line:
- Standard designation (number);
  - relevant clause, table, and/or figure number;
  - wording of the proposed change; and
  - rationale for the change.

# *CSA/ANSI B149.6:20*

## *Code for digester gas, landfill gas, and biogas generation and utilization*

### **1 Scope**

#### **1.1 General**

##### **1.1.1**

This Code applies to the installation of systems for the production, handling, storage, and utilization of digester gas in newly constructed wastewater treatment plants, as well as additions to and upgrading of existing systems.

##### **1.1.2**

This Code applies to the installation of systems for the production, handling, and utilization of landfill gas in newly constructed landfill gas systems, as well as additions to and upgrading of existing systems and temporary systems.

##### **1.1.3**

This Code does not apply to any infrastructure of a landfill upstream of the main inlet valve on the vacuum side of the blower.

##### **1.1.4**

This Code applies to the installation of systems for the production, handling, storage, and utilization of biogas in newly constructed biogas systems, as well as additions to and upgrading of existing systems.

##### **1.1.5**

This Code applies to piping systems in which the maximum operating pressures for piping used in digester systems, landfill gas systems, or biogas systems do not exceed 860 kPag (125 psig) for piping installed outdoors or 450 kPag (65 psig) for piping installed indoors.

##### **1.1.6**

This Code applies to the safety aspects of the operation and maintenance for handling, storage, and utilization of digester gas in wastewater treatment plants or landfill gas at landfill sites or biogas in biogas systems.

**Note:** *This Code does not apply to substrate storage, long-term digestate storage, or pilot scale and research digesters in biogas systems.*

##### **1.1.7**

This Code applies to existing digester gas and landfill gas systems where, in the opinion of the authority having jurisdiction, a hazard or potential hazard exists.