



Transportation of Dangerous Goods Directorate  
L'Esplanade Laurier  
300 Laurier Avenue West  
Ottawa, Ontario  
K1A 0N5

Direction générale du transport des marchandises dangereuses  
L'Esplanade Laurier  
300, avenue Laurier Ouest  
Ottawa (Ontario)  
K1A 0N5



## Equivalency Certificate (Approval issued by the competent authority of Canada)

**Certificate No.:** SU 10847 (Ren. 2)

**Certificate Holder:** Amtrol Inc.

**Mode of Transport:** Road, Rail, Marine

**Effective Date:** December 27, 2018

**Expiry Date:** March 31, 2024

### LEGEND

For the purposes of this equivalency certificate, documents referred to by an abbreviation have the following meaning:

***TDG Act:*** *Transportation of Dangerous Goods Act, 1992*

***TDG Regulations:*** *Transportation of Dangerous Goods Regulations*

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**CONDITIONS**

This equivalency certificate authorizes Amtrol Inc. to handle, offer for transport, transport, or import, and authorizes any person to handle, offer for transport, transport, or import by road or railway vehicle, or by vessel, dangerous goods that are:

- included in Class 2, Gases,

in a manner that does not comply with:

- Part 3 (Documentation) of the *TDG Regulations*,
- Part 4 (Dangerous Goods Safety Marks) of the *TDG Regulations*,
- sections 5.1.1 and 5.2 of the *TDG Regulations*,
- subparagraphs 5.10(1)(a)(ii), 5.10(1)(b)(iii) and 5.10(1)(d)(iii) of the *TDG Regulations*,
- subsection 5.10(2) of the *TDG Regulations*,
- Part 6 (Training) of the *TDG Regulations*, and
- Part 8 (Accidental Release and Imminent Accidental Release Report Requirements) of the *TDG Regulations*,

if the following conditions are met:

- (a) The dangerous goods are contained in, and are not intended to be discharged from, a means of containment that is designed for use in water pump systems;
- (b) Each means of containment is filled with:
  - UN1002, AIR, COMPRESSED, with not more than 23.5 per cent oxygen, by volume, Class 2.2,
  - UN1066, NITROGEN, COMPRESSED, Class 2.2, or
  - UN1046, HELIUM, COMPRESSED, Class 2.2;
- (c) After filling, each means of containment is subjected to a leak-test;
- (d) The internal pressure in each means of containment at 20°C when filled for transport with the gas is less than or equal to 345 kPa;
- (e) Each means of containment is packed in a strong outer packaging during transport;
- (f) Subject to conditions (g) to (q) of this certificate, each means of containment was designed, manufactured, tested, and marked in accordance with the requirements of ANSI/WSC PST 2000-2016 Standard, “*Standard Pressurized Water Storage Tank*”, published by the Water Systems Council in February 2016;

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- (g) Each means of containment was manufactured by the certificate holder at 1400 Division Road, West Warwick, RI, U.S.A., in accordance with Amtrol Inc.'s design calculations and models on file with the Executive Director, Regulatory Frameworks and International Engagement, Regulatory Affairs Branch, Transportation of Dangerous Goods Directorate, Transport Canada;
- (h) The means of containment were manufactured under a quality management system in accordance with International Standard ISO 9001:2008, "*Quality management Systems - Requirements*", published by the International Organization for Standardization, registered with a quality management system registrar (registration organization) accredited by the Standards Council of Canada (SCC), or a foreign quality management system registrar recognized by the SCC;
- (i) The means of containment are welded carbon steel containers with heads concave to pressure;
- (j) The means of containment have a maximum outside diameter of 660.4 mm, and a maximum water capacity of 450 L;
- (k) The materials of construction for the shells and the ends (heads) comply with the requirements of ASTM Standard A1008/A1008M, 2016, "*Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable*", published by ASTM International (American Society for Testing and Materials);
- (l) Materials of shells and ends of finished means of containment are identified by a suitable method during manufacture to provide traceability of the metal to its heat number;
- (m) Subject to condition (n) of this certificate, the wall stress at a pressure equal to three times the filling pressure at 20°C does not exceed 138 MPa using the following formula:

$$S = Pd/2t$$

Where S = wall stress in MPa;

P = pressure equal to three times the filling pressure at 20°C in MPa;

d = inside diameter of the means of containment in mm;

t = minimum wall thickness of the means of containment in mm;

- (n) For means of containment with an inside diameter greater than 265 mm, the wall stress calculated in accordance with condition (m) of this certificate does not exceed 172 MPa;

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- (o) Subject to condition (p) of this certificate, the minimum design burst pressure is at least 6 times the filling pressure at 20°C
- (p) For means of containment with an inside diameter greater than 265 mm, the minimum design burst pressure is at least 8 times the filling pressure at 20°C;
- (q) Each means of containment was subjected to a pneumatic pressure test for at least 30 s at a minimum pressure of at least 1.0 MPa and showed no leaks or other defects; and
- (r) When the gross mass of dangerous goods offered for transport by one consignor to one destination is greater than 500 kg, Part 3 (Documentation), Part 4 (Dangerous Goods Safety Marks) except sections 4.10, 4.11 and 4.12, Part 6 (Training) and Part 8 (Accidental Release and Imminent Accidental Release Report Requirements) of the *TDG Regulations* apply.

**Note 1: Subsection 31(4) of the *TDG Act* stipulates that any non-compliance with the conditions of this equivalency certificate causes the provisions of the Act and Regulations to apply as though this equivalency certificate did not exist.**

**Note 2: Any other requirement of the *TDG Regulations* applies.**

Signature of Issuing Authority



David Lamarche, P. Eng., ing.  
Chief,  
Approvals and Special Regulatory Projects

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*(The following Explanatory Note is for information purposes only and is not part of this certificate.)*

**Explanatory Note**

This equivalency certificate authorizes the transport of pre-pressurized diaphragm-type tanks used in water storage applications. The dangerous goods are a permanent component of the means of containment. The means of containment are for single-trip shipment through the distribution chain to the point of use (installation sites). An equivalent level of safety is provided by requiring that the means of containment be designed with a significant safety margin against burst when used in the service specified herein.

**Legend for Certificate Number**

SH - Road, SR - Rail, SA – Air, SM - Marine  
SU - More than one Mode of Transport  
Ren. - Renewal

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**NOTE**

Under Canadian Law, a foreign manufacturer of non-specification cylinders cannot be charged with an offence under the *Transportation of Dangerous Goods Act, 1992* for failure to comply with the conditions of a Certificate. However, certain remedies under the Act are available to Transport Canada in this eventuality.

These include:

1. detention of dangerous goods and consequently the means of containment containing them (subsection 17(1));
2. detention of the means of containment whether full or empty (subsection 17(1));
3. directions not to import the means of containment or to return them to origin (subsection 17(3));
4. inspectors' directions (section 19);
5. directions to importers of the means of containment to issue notices of defective construction or recall (subsection 9(2)); and
6. revocation of the Certificate, thereby making any use of the means of containment an offence (subsection 31(6)).

If none of the foregoing are adequate, Protective Directions may be issued to prohibit or to control the use of the means of containment (section 32).