

# Portable tanks for the transport of dangerous goods



# Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

## Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document’s fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party’s intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

## Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by treaty or by law, CSA Group reserves all intellectual property rights in this document.

## Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

## Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF form.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way, or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



# ***Standards Update Service***

***CSA B625:20***  
***March 2020***

**Title:** *Portable tanks for the transport of dangerous goods*

To register for e-mail notification about any updates to this publication

- go to [store.csagroup.org](https://store.csagroup.org)
- click on **Product Updates**

The **List ID** that you will need to register for updates to this publication is **24258.1**

If you require assistance, please e-mail [techsupport@csagroup.org](mailto:techsupport@csagroup.org) or call 416-747-2233.

Visit CSA Group's policy on privacy at [www.csagroup.org/legal](https://www.csagroup.org/legal) to find out how we protect your personal information.

**Canadian Standards Association (operating as “CSA Group”)**, under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users — including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

Individuals, companies, and associations across Canada indicate their support for CSA Group’s standards development by volunteering their time and skills to Committee work and supporting CSA Group’s objectives through sustaining memberships. The more than 7000 committee volunteers and the 2000 sustaining memberships together form CSA Group’s total membership from which its Directors are chosen. Sustaining memberships represent a major source of income for CSA Group’s standards development activities.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in eight countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

For further information on CSA Group services, write to  
CSA Group  
178 Rexdale Boulevard  
Toronto, Ontario, M9W 1R3  
Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at [www.scc.ca](http://www.scc.ca).

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada’s economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at [www.scc.ca](http://www.scc.ca).

Standards Council of Canada  
600-55 Metcalfe Street  
Ottawa, Ontario, K1P 6L5  
Canada



**Standards Council of Canada**  
**Conseil canadien des normes**

Cette Norme Nationale du Canada est disponible en versions française et anglaise.

*Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users to judge its suitability for their particular purpose.*

*\*A trademark of the Canadian Standards Association, operating as “CSA Group”*

*National Standard of Canada*

**CSA B625:20**  
**Portable tanks for the transport of  
dangerous goods**



®A trademark of the Canadian Standards Association,  
operating as "CSA Group."



Published in March 2020 by CSA Group  
A not-for-profit private sector organization  
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

To purchase standards and related publications, visit our Online Store at [store.csagroup.org](https://store.csagroup.org)  
or call toll-free 1-800-463-6727 or 416-747-4044.

ICS 13.300  
ISBN 978-1-4883-1935-8

© 2020 Canadian Standards Association  
All rights reserved. No part of this publication may be reproduced in any form whatsoever  
without the prior permission of the publisher.

# Contents

Technical Committee on Portable Tanks for the Transportation of Dangerous Goods	5
Preface	8
<b>1 Scope</b>	<b>10</b>
<b>2 Reference publications</b>	<b>11</b>
<b>3 Definitions</b>	<b>13</b>
<b>4 General requirements</b>	<b>17</b>
4.1 General	17
4.2 Classification	17
4.3 Annex <b>A</b> and list of dangerous goods	18
4.4 Annex <b>B</b> and special provisions	18
4.5 Conflict	18
4.6 Danger to public safety	18
4.7 Venting and loss of content	18
4.8 Quality control manual	18
4.8.1 Scope	18
4.8.2 Application	18
4.9 Qualifications for personnel conducting non-destructive testing	18
4.10 Qualifications for tank designers	19
<b>5 Design and construction requirements</b>	<b>19</b>
5.1 Requirements for the design and construction of all UN portable tanks	19
5.1.1 General requirements and design criteria	19
5.1.2 Materials	20
5.1.3 Shells	22
5.1.4 Service equipment	23
5.1.5 Pressure-relief devices	24
5.1.6 Gauging devices	26
5.1.7 Portable tank supports, structural equipment, and lifting and tie-down attachments	26
5.1.8 Marking	27
5.2 Additional requirements for the design and construction of UN portable tanks intended for solids or liquids of Class 1 or Classes 3 to 9	29
5.2.1 General	29
5.2.2 Additional general requirements and design criteria	30
5.2.3 Shells	30
5.2.4 Service equipment	32
5.2.5 Pressure-relief devices	34
5.2.6 Vacuum-relief devices	39
5.2.7 Fusible elements	39
5.3 Additional requirements for the design and construction of UN portable tanks intended for the transportation of non-refrigerated liquefied gases of Class 2	39
5.3.1 Additional general requirements and design criteria	40
5.3.2 Materials	40

5.3.3	Shells	40
5.3.4	Service equipment	43
5.3.5	Pressure-relief devices	44
5.3.6	Additional requirements for portable tanks intended for chlorine (UN 1017)	47
5.3.7	Additional requirements for portable tanks intended for anhydrous ammonia	48
5.4	Additional requirements for the design and construction of UN portable tanks intended for the transportation of refrigerated liquefied gases of Class 2	48
5.4.1	Additional general requirements and design criteria	48
5.4.2	Materials	50
5.4.3	Shells	50
5.4.4	Service equipment	52
5.4.5	Pressure-relief devices	53
5.4.6	Gauging devices	54
5.4.7	Marking	54
5.5	Inspection during manufacturing, and initial inspection and testing	55
5.5.1	Certification	55
5.5.2	Independent inspector	55
5.5.3	Inspection during manufacturing	55
5.5.4	Initial inspection and testing	55
5.5.5	Initial inspection and test report	56
<b>6</b>	<b>Selection and use</b>	<b>57</b>
6.1	General requirements	57
6.1.1	UN portable tanks approved by Canada	57
6.1.2	UN portable tanks approved by a country other than Canada	57
6.1.3	Additional requirements for tank containers	57
6.1.4	Use of IM and IMO-type portable tanks	58
6.1.5	Substitute portable tanks	58
6.1.6	Additional general requirements for portable tanks	59
6.1.7	Pre-loading requirements	60
6.1.8	Post-loading requirements	61
6.1.9	Pre-unloading requirements	62
6.2	Additional requirements for the transport of solid or liquid dangerous goods of Class 1 or Classes 3 to 9	62
6.2.1	General	62
6.2.2	Loading requirements	63
6.2.3	Filling	63
6.2.4	Liquefaction	63
6.2.5	Additional requirements applicable to the transport of Type F organic peroxide dangerous goods	63
6.3	Additional requirements for the transport of non-refrigerated liquefied gases and chemicals under pressure of Class 2	65
6.3.1	General	65
6.3.2	Filling	66
6.3.3	Additional requirements applicable to the transport of chlorine (UN 1017)	66
6.3.4	Additional requirements applicable to the transport of anhydrous ammonia (UN 1005)	67
6.4	Additional requirements for the transport of refrigerated liquefied gases of Class 2	67
6.4.1	General	67
6.4.2	Degree of filling requirements	67

6.4.3	Actual holding time	68
6.4.4	Pre-loading requirements	68
6.4.5	Post-loading requirements	69
<b>7</b>	<b>Design approval process and documentation</b>	<b>69</b>
7.1	Approval of the design of a UN portable tank	69
7.1.1	General	69
7.1.2	Design reviewer	69
7.1.3	Submission of new design	70
7.1.4	Responsibility of the design reviewer	70
7.1.5	Design approval certificate	72
7.1.6	Permitted design variations	73
7.2	Modifications to approved UN portable tank designs	73
<b>8</b>	<b>Inspection, test, and repair of portable tanks</b>	<b>76</b>
8.1	Inspection and test of portable tanks	76
8.1.10	Inspection and testing of UN portable tanks outside Canada	77
8.1.12	Decontamination	78
8.1.13	Inspection and test of pressure-relief devices in Class 8 dangerous goods service	78
8.2	Intermediate 2.5-year periodic inspection and test	79
8.3	5-year periodic inspection and test	80
8.4	Exceptional inspection and test	81
8.5	Internal and external inspection	81
8.5.3	Rejection criteria	82
8.6	Thickness test	83
8.6.4	Rejection criteria	83
8.7	Pressure test	83
8.7.1	General	83
8.7.4	Hydrostatic test	84
8.7.5	Pneumatic test	84
8.7.6	Pressure test rejection criteria	85
8.8	Leak test	86
8.9	Inspection and test marking	86
8.10	Inspection and test reports	87
8.11	Portable tank repairs	87
8.12	Portable tank modifications	88
8.12.1	General	88
8.12.2	Permitted modifications	88
<b>9</b>	<b>Registrations and documentation</b>	<b>89</b>
9.1	Registration requirements	89
9.1.1	Scope	89
9.1.2	Registration of facilities for portable tank manufacture, modification, inspection, test and repair	89
9.1.3	Registration of design reviewers and independent inspectors	90
9.1.4	Registration of facilities performing the dynamic longitudinal impact test	91
9.1.5	Additional registration requirements and conditions	91
9.1.6	Amendments to certificates of registration	92
9.1.7	Renewal of certificate of registration	92

9.2	Certification of compliance and documentation	92
9.2.1	Affixing of metal identification plate	92
9.2.2	Certificate of compliance	93
9.3	Documentation: Issuing, retention, and transfer	93
9.3.1	Manufacturer's responsibility	93
9.3.2	Independent inspector's responsibility	93
9.3.3	Owner's responsibility	94
9.3.4	Transfer of ownership	94
9.3.5	Inspection and test facility's responsibility	94

---

Annex A (normative)	— List of dangerous goods	95
Annex B (normative)	— Special provisions, T Codes, and TP notes	141
Annex C (normative)	— Dynamic longitudinal impact test	159
Annex D (informative)	— Examples of metal identification plate markings for UN portable tanks	166
Annex E (normative)	— Quality control manual	171
Annex F (informative)	— Bibliography	178

# Preface

This is the third edition of CSA B625, *Portable tanks for the transport of dangerous goods*. It supersedes the previous editions, published in 2013 and 2008.

This Standard is one of a series of Standards prepared for use in conjunction with the *Transportation of Dangerous Goods Regulations*, which adopt this Standard by reference. Because the Regulations may adopt this Standard with certain exceptions or additional requirements, they should always be consulted in conjunction with this Standard.

The Technical Committee on Portable Tanks for the Transportation of Dangerous Goods is made up of members having responsibility for and expertise in the areas of portable tank design, design review, manufacture, inspection, test, use, and regulation. This Standard has been developed by consensus of the committee members.

This Standard is based on the United Nations' *Recommendations on the Transport of Dangerous Goods — Model Regulations*, 20th ed. rev. (2017) ("UN Recommendations"), and specifies the decision items that are left to the discretion of the "competent authority" by the UN Recommendations. The Standard contains

- the rules for the design and manufacture of UN portable tanks in Canada and their approval by Canada; and
- the provisions for the selection and use, inspection, test, and repair in Canada, of UN portable tanks, as well as IM 101, IM 102, and IMO-type 1, 2, 5, and 7 portable tanks, regardless of where they were approved and manufactured.

This Standard requires that each UN portable tank design approved or manufactured in Canada be reviewed and approved by a design reviewer registered with Transport Canada. The design reviewer has the responsibility of issuing the design approval number and the design approval certificate of UN portable tank designs on behalf of the competent authority in Canada, Transport Canada.

In addition to other requirements, this Standard prescribes that the shell of certain types of UN portable tanks be designed, constructed, certified, and stamped (the "U" stamp) in accordance with the requirements of the ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 1. This provision triggers certain requirements, including the requirements for certain inspections to be carried out by "authorized inspection agencies" that are accredited in accordance with applicable requirements of the ASME *Code*. For the purpose of carrying out "authorized inspection agency" functions, any authorized inspection agency holding a valid authorized inspection agency certificate of accreditation is acceptable.

This Standard also specifies conditions for the handling, offering for transport, or transport, in Canada, of UN portable tanks approved by a foreign jurisdiction and manufactured outside Canada. Such tanks may be used as specified, provided that they are designed and manufactured in accordance with the UN Recommendations and the applicable national regulations of the country of approval and the country of manufacture, and that the tanks' shells are designed and manufactured in accordance with the ASME *Code*, Section VIII, Division 1 or 2.

The major changes to this edition of the Standard are the following:

- alignment of technical requirements with the 20th edition of the UN *Recommendations*;
- revised quality manual requirements to allow for harmonized documentation requirements with CSA B620 for those facilities also registered under that safety standard for Highway and TC portable tanks;

- restructuring of registration requirements to simplify the number of registration types; and
- limiting the pressure vessel code acceptability of foreign-approved tanks to the ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 1 or 2. Foreign-approved tanks built after 2018 to the ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 1 and used for Class 2 or toxic inhalation hazard dangerous goods will need to be U-stamped.

It is the intent of the Technical Committee to maintain this Standard in a manner that provides the maximum degree of harmonization with the UN Recommendations while meeting the needs of Canada.

This Standard was prepared by the Technical Committee on Portable Tanks for the Transportation of Dangerous Goods, under the jurisdiction of the Strategic Steering Committee on Mechanical Industrial Equipment Safety, and has been formally approved by the Technical Committee.

This Standard 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.

**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 Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
  - 3) *This Standard 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 Standard.*
  - 4) *To submit a request for interpretation of this Standard, please send the following information to [inquiries@csagroup.org](mailto:inquiries@csagroup.org) and include “Request for interpretation” in the subject line:*
    - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
    - b) *provide an explanation of circumstances surrounding the actual field condition; and*
    - c) *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 Standard 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:*
    - a) *Standard designation (number);*
    - b) *relevant clause, table, and/or figure number;*
    - c) *wording of the proposed change; and*
    - d) *rationale for the change.*

# CSA B625:20

## ***Portable tanks for the transport of dangerous goods***

### **1 Scope**

#### **1.1**

This Standard applies to the design and manufacture of UN portable tanks and their approval by the Competent Authority of Canada. Such UN portable tanks have a capacity greater than 450 L and might or might not meet the definition of “container” within the terms of the International Maritime Organization’s *International Convention for Safe Containers, 1972*.

In addition to the provisions of this Standard, unless otherwise specified, the applicable provisions of the *International Convention for Safe Containers, 1972* would apply to any portable tank which meets the definition of a “container” within the terms of that Convention.\* Additional provisions might apply to offshore portable tanks that are handled in open seas.

The International Convention for Safe Containers does not apply to offshore tank containers that are handled in open seas. The design and testing of offshore tank containers takes into account the dynamic lifting and impact forces that might occur when a tank is handled in open seas in adverse weather and sea conditions. The provisions for such tanks are determined by the approving competent authority.

This Standard also applies to the selection, use, inspection, testing, and repair of UN portable tanks, as well as IMO-type portable tanks (IMO-type 1, 2, 5, or 7 tanks), and IM 101 and IM 102 portable tanks, for handling, offering for transport, or transport of dangerous goods in Canada, whether or not they meet the definition of “container” within the terms of the *International Convention for Safe Containers, 1972*.

\* *In Canada, the Safe Containers Convention Act and the Safe Containers Convention Regulations have been adopted to give effect to the provisions of the Convention.*

#### **1.2**

The testing and evaluation of a product in accordance with this Standard can involve the use of processes, materials, and/or equipment that can be hazardous. This Standard does not address the occupational health and safety aspects associated with its use. Anyone using this Standard has the responsibility to consult the appropriate authorities and establish appropriate health and safety practices in conjunction with any applicable regulatory requirements.

#### **1.3**

The *Transportation of Dangerous Goods Act, 1992*, and the *Transportation of Dangerous Goods Regulations* might set out requirements that are additional to or different from those in this Standard. Where there is an inconsistency between the requirements of this Standard and those of the Act or Regulations, the Act or Regulations takes precedence to the extent of the inconsistency.

## 1.4

This Standard sets out certain minimum requirements regarding the design, construction, testing, selection, and use of portable tanks. It is essential to exercise competent judgment in conjunction with this Standard. In some circumstances, it is necessary to exceed the minimum requirements of this Standard so that adequate public safety is achieved.

## 1.5

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

## 2 Reference publications

This Standard refers to the following publications. For dated references, only the edition cited shall apply. For undated references, the latest edition of the referenced document (including any amendments) shall apply.

**Note:** See also Annex E.

### CSA Group

CAN/CSA-C22.2 No. 60529-16

*Degrees of protection provided by enclosures (IP Code)*

B341

*UN pressure receptacles and multiple-element gas containers for the transport of dangerous goods*

### ASME (American Society of Mechanical Engineers)

*Boiler and Pressure Vessel Code (2017)*

*Section V — Nondestructive Examination*

*Section VIII — Pressure Vessels — Division 1*

*Section VIII — Pressure Vessels — Division 2 — Alternative Rules*

### ASTM International

E112-10

*Standard Test Methods for Determining Average Grain Size*