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STANDARD FOR SAFETY

ANSI/CAN/UL/ULC 2258:2018, Standard for Aboveground Nonmetallic Tanks for Fuel Oil and Other Combustible Liquids



ANSI/UL 2258-2018



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UL Standard for Safety for Aboveground Nonmetallic Tanks for Fuel Oil and Other Combustible Liquids, UL/ULC 2258

First Edition, Dated May 17, 2018

Summary of Topics

The First Edition of UL/ULC 2258 has been issued to reflect the latest ANSI and SCC approval dates, and to incorporate the proposals dated October 27, 2017 and February 23, 2018.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated October 27, 2017 and February 23, 2018.

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ANSI/UL 2258-2018



May 17, 2018

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UL/ULC 2258

**Standard for Aboveground Nonmetallic Tanks for Fuel Oil and Other
Combustible Liquids**

First Edition

May 17, 2018

This ANSI/CAN/UL/ULC Safety Standard consists of the First Edition.

The most recent designation of ANSI/UL 2258 as an American National Standard (ANSI) occurred on May 17, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been approved as a National Standard of Canada (NSC) by the Standards Council of Canada (SCC).

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Preface

This is the First Edition of the ANSI/CAN/UL/ULC 2258, Standard for Aboveground Nonmetallic Tanks for Fuel Oil and Other Combustible Liquids.

UL is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. ULC Standards is accredited by the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

Appendix A, identified as Normative, forms a mandatory part of this Standard. Appendix B, identified as Informative, is for information purposes only.

This ANSI/CAN/UL/ULC 2258 Standard for Safety is under continuous maintenance, whereby each revision is ANSI/CAN approved upon publication. If no revisions occur, the initiation of the review of this Standard will commence within 5 years of the date of publication.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

This First Edition Joint American National Standard and National Standard of Canada is based on, and now supersedes, the Outline of Investigation, Issue 4 of Subject 2258 and the First Edition of CAN/ULC-S670-14.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

Requests for interpretation of this Standard should be sent to ULC Standards. The requests should be worded in such a manner as to permit a "yes" or "no" answer based on the literal text of the requirement concerned.

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This Edition of the Standard has been formally approved by the Joint UL/ULC Technical Committee (TC) on Combustible Liquid Tanks and Accessories, TC 2258.

This list represents the TC 2258 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

TC 2258 Membership

Name	Representing	Interest Category	Region
Beaulieu, Michel	Roth Industries Inc.	Producer	USA
Bershad, Susan	National Fire Protection Association (NFPA)	General Interest	USA
Bourassa, Eric	Granby Industries L.P.	Non-voting	Canada
Deschamps, Claude	Régie du Bâtiment du Québec (RBQ)	AHJ	Canada
D'Onofrio, Caitlin	ULC Standards	TC Co-Project Manager – Non-voting	Canada
Fernandes, Elson	Elfent Ltd.	User	Canada
Juranty, Michael	NH Department of Environmental Services	AHJ	USA
Lacroix, Jacques	Vilco LTD	Producer	Canada
Legault, Pierre	Integrated Review Services – Consulting	General Interest	Canada
Levey, John	National Oilheat Research Alliance (NORA)	General Interest	USA
Moulton, Peter	Maine Department of Environmental Protection	Government	USA
Prusko, Jeffrey	Underwriters Laboratories Inc.	TC Co-Project Manager – Non-voting	USA
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Sowers, Joseph	Florida Department of Health	AHJ	USA
Wade, John	ULC Standards	TC Chair – Non-voting	Canada

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This Standard is intended to be used for conformity assessment.

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

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1 SCOPE

1.1 This Standard covers the minimum requirements for nonmetallic or composite primary tanks, secondary tanks, and open or closed secondary containments from 227 to 2500 L (60 to 660 US gal) primary tank capacity intended primarily for the storage and supply of heating fuel for oil burning equipment, or alternately for the storage of diesel fuels for compression ignition engines and motor oils (new and used) for automotive service stations, in aboveground applications.

1.2 Each tank type is permitted to be fabricated in a combination of various shapes (cylindrical, rectangular or obround), orientations (horizontal, vertical) and may have integral options (tank supports or accessories) as covered in this Standard.

1.3 These shop built tanks are completely fabricated, inspected, and tested for leakage before shipment from the factory as completely assembled vessels except for options intended for field assembly in accordance with the manufacturer's instructions.

1.4 These tanks are intended for stationary installation and use in accordance with, but not limited to, any of the following documents as appropriate for each country below. These tanks are not intended for the transportation of fuel, nor are they intended to be transported while containing liquids.

A For the United States; ANSI/NFPA 31, Standard for the Installation of Oil-Burning Equipment; ANSI/NFPA 30, Flammable and Combustible Liquids Code; NFPA 30A, Code for Fuel Dispensing Facilities and Repair Garages; and the International Fire Code published by the International Code Council.

B For Canada; the National Fire Code of Canada; CSA B139, Installation Code for Oil Burning Equipment; Regulations of the appropriate authority having jurisdiction; and CCME Environmental Code of Practice for Aboveground and Underground Storage Tank System Containing Petroleum and Allied Petroleum Products.

1.5 These requirements do not apply to steel tanks covered by the following standards:

A UL 80, Standard for Steel Tanks for Oil-Burner Fuels;

B CAN/ULC-S602, Standard for Aboveground Steel Tanks for Fuel Oil and Lubricating Oil;

C UL 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids;

D CAN/ULC-S601, Standard for Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids;

E UL 58, Standard for Steel Underground Tanks for Flammable and Combustible Liquids; or

F CAN/ULC-S603, Standard for Steel Underground Tanks for Flammable and Combustible Liquids.

1.6 These requirements do not apply to nonmetallic tanks covered by the following standards:

A UL 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures, and CAN/ULC S615, Standard for Fibre Reinforced Plastic Underground Tanks for Flammable and Combustible Liquid; or

B UL 1746, Standard for External Corrosion Protection Systems for Steel Underground Storage Tanks, and CAN/ULC-S603.1, Standard for External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids.

1.7 These requirements do not cover storage of waste oils or other combustible liquids with different fire, physical or material compatibility properties with respect to the intended liquids in Clause 1.1 but do cover 100 % biodiesel and biodiesel blends up to 100 %. These requirements do not cover storage of flammable liquids.

1.8 These requirements do not cover special evaluations for resistance to hurricanes, tornadoes, earthquakes, floods, fires or other natural disasters; or resistance to vehicle impact.

2 UNITS OF MEASUREMENT

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3 REFERENCE PUBLICATIONS

3.1 Refer to Appendix B for a list of publications referenced in this Standard. Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard. When the latest edition of a Standard is not applicable, the appropriate edition is indicated accordingly in Appendix B.

4 COMPONENTS

4.1 Except as indicated in Clause 4.2, a component of a product covered by this Standard shall comply with the requirements for that component.

4.2 A component is not required to comply with a specific requirement that:

A Involves a feature or characteristic not required in the application of the component in a product covered by this Standard; or

B Is superseded by a requirement in this Standard.

4.3 A component shall be used in accordance with its rating established for the intended conditions of use.

4.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

5 GLOSSARY

5.1 Terms used in this Standard are defined in Clauses 5.2 through 5.31.

5.2 ABOVEGROUND TANK (also known as ABOVEGROUND STORAGE TANK or AST) – A storage tank that is intended for installation above grade, at grade or below grade without backfill.

5.3 ATMOSPHERIC TANK (also known as NONPRESSURE TANK) – A storage tank that has been designed to operate at pressures from atmospheric through a gauge pressure of 6.9 kPa (1.0 psig) measured at the top of the tank; not intended to accommodate an internal vacuum greater than 300 Pa (0.0435 psi) (gauge) or -2.25 mmHg (-0.0886 inHg).

5.4 AUTHORITY HAVING JURISDICTION (AHJ) – The governmental body responsible for the enforcement of any part of this Standard or the official or agency designated by that body to exercise such a function.

5.5 BIODIESEL – General description of various Class II to IIIB range of long chain fatty acid methyl ester fuels complying with ASTM D6751, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels, processed from vegetable oils or animal fats in pure form (B100). Biodiesel may also be blended with heating fuels or diesel fuels (B1 – B99) denoting the percent volume of biodiesel in the mix.

5.6 CLOSED SECONDARY CONTAINMENT (also known as CLOSED TOP DIKE TANK) – Construction that is external to the primary tank that is designed to prevent the entrance of precipitation and debris into the containment and where the interstitial space is capable of being monitored.

5.7 COMBUSTIBLE LIQUID – Any liquid having a flash point at or above 37.8 °C (100 °F) and below 93.3 °C (200 °F), and as defined in the National Fire Code of Canada and the International Fire Code (NFPA 30)

5.8 DIESEL FUELS – General description of various Class II petroleum distillate grades complying with ASTM D975, Standard Specification for Diesel Fuel Oils, or CGSB 3.520, Diesel Fuel Containing Low Levels of Biodiesel (B1-B5) or CGSB 3.6, Off-Road Diesel Fuel, including No. 1 and No. 2 Diesel Fuel (also known as on-road diesel, including low sulfur diesel, ultra-low sulfur diesel and biodiesel blends) typically intended for powering compression ignition engines.

Note: these fuels may contain up to 5% biodiesel without identification of the content.

5.9 DESIGN SERIES – A tank design series is a set of tanks of the same diameter, number of walls, and head shape that vary in length.

5.10 FIRE JACKET – An external material enclosing the primary tank, or secondary tank or dike tank which is intended to provide protection from fire, physical damage, or both.

5.11 HEATING FUELS /FUEL OIL – General description of various Class II petroleum distillate grades complying with ASTM D396, Standard Specification for Fuel Oils, or CGSB 3.2, Heating Fuel Oil; or ASTM D3699, Standard Specification for Kerosene, or CGSB 3.3, Kerosene, including No. 1 and No. 2 Fuel Oils or K1 Kerosene (also known as oil burner fuel, including low sulfur distillates and biodiesel blends), typically intended for use in oil burning equipment.

Note: these fuels may contain up to 5% biodiesel without identification of the content.

5.12 INTERSTICE / INTERSTITIAL SPACE (also known as ANNULAR SPACE) – The space between the walls that is capable of being monitored for leakage through:

- A the primary tank wall;
- B the secondary containment wall;
- C the multiple containment walls; or
- D monitorable bulkheads.

5.13 LOW SULFUR DIESELS – Diesel fuels with additional processing to reduce the sulfur content ≤ 500 ppm (low sulfur diesel) or ≤ 15 ppm (ultra-low sulfur diesel).

5.14 MOTOR OILS – General description of various Class III petroleum distillate or synthetic grades including lube oils, hydraulic oils or transmission oils typically used as lubricating, cooling, or working fluids in motor vehicle applications.

5.15 NONMETALLIC TANK (also known as TANK SYSTEM) – A storage tank that is constructed of a nonmetallic primary tank and may include a fire jacket, or metallic secondary, or nonmetallic secondary containment.

5.16 OPEN SECONDARY CONTAINMENT (also known as OPEN TOP DIKE TANK) – Construction that is external to the primary tank that is open to the atmosphere and where the interstitial space is not capable of being pressurized but is capable of being monitored.

5.17 PERFORMANCE TESTS – A complete evaluation conducted on a limited quantity of representative “worst case” tanks intended to verify compliance with all applicable performance requirements in a Standard. Performance tests are typically destructive.

5.18 PRIMARY TANK – The product storage tank or compartment.

5.19 PRODUCTION TESTS – A limited evaluation conducted by the tank manufacturer on each tank after complete assembly but prior to shipping intended to verify compliance with critical production requirements in a Standard, such as leakage. Production tests are not destructive.

5.20 RELIEF DEVICE – A mechanical or electrical device which automatically reduces the risk of over pressure of any part of the tank system.

5.21 SECONDARY CONTAINMENT – The ability of a design or construction to contain a liquid to a minimum of 300° (for cylindrical and obround), 95 % height (for rectangular and verticals), or 110 % primary capacity (for secondary containments) only in abnormal use (from primary tank leakage or rupture) for short periods without leakage.

5.22 SECONDARY CONTAINMENT TANK (also known as SECONDARY TANK) – A primary tank with an integral secondary containment where the inner and outer walls are in intimate contact and the interstitial space is capable of being vacuum or pressure monitored. Double wall tanks are provided with a vacuum monitor.

5.23 STORAGE TANK (also known as TANK) – A vessel having a liquid capacity of at least 227 L (60 US gal), that is intended for fixed installation, and is not used for processing.

5.24 SUPPLY CONNECTION – A storage tank top or bottom opening or fitting that is intended to provide a means to supply fuel to oil burning equipment or oil to a dispensing device by gravity or suction. Bottom connections also provide a means to automatically drain water from the tank.

5.25 TANK ACCESSORY/ACCESSORIES– Optional devices or components of an aboveground, nonmetallic tank intended to provide a specific function, such as venting, heating, load bearing, spill or special containment. Tank accessories are either integrally connected or field assembled to the tank and may be emergency vents, hot wells, lift lugs, spill containers or other types.

5.26 TANK ORIENTATIONS – General description of the position of an aboveground tank with respect to stability. Horizontal tanks typically are longer and wider than high. Vertical tanks typically are higher than wide.

5.27 TANK SHAPES – General description of the geometry of an aboveground tank. Cylindrical tanks are tubes formed with formed shells and equivalent circular heads. Rectangular tanks are boxes formed with flat right angled sides. Obround tanks are cylindrical tanks with flat portions of the shell and head on two opposing sides.

5.28 TANK SUPPORT – Optional structural members of an aboveground tank intended to bear the mass of, raise above grade and/or stabilize the tank and its contents. Tank supports are integrally connected to the tank and may be saddle, leg, flat, skid or other types.

5.29 USED OIL – General descriptions of oils such as those drained from motor vehicles or cooking appliances after use that do not contain water, gas or other contaminants that change the oil Class or may adversely affect the storage tank.

5.30 VENT – A storage tank top opening that is intended to provide both normal venting (equalizing pressure from fill, withdraw or atmospheric changes typically up to 6.7 kPa (1.0 psig)) and emergency venting (relief of excessive pressure from external fire exposure typically not to exceed 17.2 kPa (2.5 psig)).

5.31 WASTE OIL – General description of oils that contain some undefined amounts of water, gasoline, diesel, or other contaminants that change the liquid Class of the oil or may adversely affect the storage tank. Oils of unknown origin shall be considered waste oil.

6 TANK COMPONENTS & TANK ACCESSORIES

6.1 The following tank components may be provided as either an attached part of a complete tank, or packed with a tank for assembly according to the manufacturer's instructions at the installation site. When provided, these components shall comply with all applicable requirements of the Standards identified below:

A Fuel filters or oil deaerators according to UL 331, Standard for Strainers for Flammable Fluids and Anhydrous Ammonia, or ULC/ORD-C331, Guide for the Investigation of Strainers for Flammable Fluids and Anhydrous Ammonia, rated at least 172 kPa (25 psig) for use with combustible liquids described in Section 1, Scope, intended for connection to the burner supply;

B Fusible link valves or shutoff valves according to UL 842, Standard for Valves for Flammable Fluids, or ULC/ORD C842, Guide for the Investigation of Valves for Flammable and Combustible Liquids, rated to at least 172 kPa (25 psi) for use with the combustible liquids described in Section 1, Scope, and intended for connection to the burner supply;

C Liquid level gauges, vent signal devices or leak detection devices according to UL 180, Standard for Liquid-Level Indicating Gauges for Oil Burner Fuels, or ULC/ORD C180, Liquid Level Gauges and Indicators for Fuel Oil and Lubricating Oil Tanks, or CAN/ULC-S675.1, Standard for Volumetric Leak Detection Devices for Underground and Aboveground Storage Tanks for Flammable and Combustible Liquids, or CAN/ULC-S675.2, Standard for Nonvolumetric Precision Leak Detection Devices for Underground and Aboveground Storage Tanks and Piping for Flammable and Combustible Liquids, rated at least 172 kPa (25 psig) for use with the combustible liquids described in Section 1, Scope, intended for use in top openings; and

D Rain covers according to the requirements of Subsection 9.2.7, Rain Test.

6.2 The following tank accessories may be provided as either an attached part of a complete tank, or packed with a tank for assembly according to the manufacturer's instructions at the installation site. When provided, these accessories shall comply with all applicable requirements identified below:

A Spill containers shall be plastic or steel leak tight constructions integral to the tank with attached covers, and have a minimum 3.8 L (1.0 US gal) capacity for use around top openings such as fill and vents in accordance with UL 2583, Fuel Tank Accessories, or CAN/ULC-S663, Spill Containment Devices for Aboveground Flammable and Combustible Liquid Storage Tanks; and

B Piping for support legs shall be fabricated from minimum Schedule 40 ASME B36.10M black pipe in sizes and threads to fit the integral leg brackets and shall comply with the requirements of Subsection 9.2.4, Pipe and Fitting Bending Test.

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