



UL 971

STANDARD FOR SAFETY

Nonmetallic Underground Piping For Flammable Liquids

UL Standard for Safety for Nonmetallic Underground Piping For Flammable Liquids, UL 971

Third Edition, Dated December 3, 2025

Summary of Topics

This new Third Edition of UL 971 dated December 3, 2025 includes the following changes in requirements:

- ***Correction of Interstitial Communication Requirement; [19.2](#).***
- ***Correction to [8.2.3](#).***
- ***Updates to [Table 6.1](#).***
- ***Editorial updates [17.3.1](#), [17.4.1](#), and [20.3](#).***
- ***Miscellaneous updates to align the document with the current Style Manual.***

The revised requirements are substantially in accordance with Proposal(s) on this subject dated August 29, 2025 and October 24, 2025.

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UL 971

Standard for Nonmetallic Underground Piping For Flammable Liquids

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December 3, 2025

This UL Standard for Safety consists of the Third Edition.

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

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INTRODUCTION

1 Scope

1.1 These requirements cover primary carrier, secondary containment, integral primary/secondary containment, normal vent and vapor recovery, nonmetallic pipe, fittings, and systems (products) intended for use underground in the distribution of petroleum-base flammable and combustible liquids, alcohols, and alcohol-blended fuels as identified in this Standard.

1.2 The piping covered by these requirements is intended to be installed and used in accordance with the Flammable and Combustible Liquids Code, NFPA 30 and the Standard for Automotive and Marine Service Station Code, NFPA 30A.

1.3 These requirements cover nonmetallic thermoplastic (flexible) and thermoset (rigid) plastic piping with manufacturer-supplied fittings for underground use only. The products covered by this Standard have been evaluated for assembly in normal soil applications by qualified persons in accordance with the manufacturer's instructions.

1.4 The products covered by this Standard have not been evaluated for applications in sumps [more than 12 inches (30.5 cm) from sump wall], as connector pipe (between underground pipe and dispensing device), aboveground or marine use, or other applications exceeding ambient temperatures of 75 °F (23 °C).

2 Units of Measurement

2.1 If a value for measurement is followed by a value in other units in parentheses, the second value shall be only approximate. The first stated value is the requirement.

3 Referenced Publications

3.1 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.

3.2 The following publications are referenced in this Standard:

ASTM A653/A653M, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*

ASTM D471, *Standard Test Method for Rubber Property – Effect of Liquids*

ASTM D1193, *Standard Specification for Reagent Water*

ASTM D2412, *Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading*

ASTM D2143, *Test Method for Cyclic Pressure Strength of Reinforced Thermosetting Plastic Pipe*

ASTM D2837, *Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials*

ASTM D3567, *Standard Practice for Determining Dimensions of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings*

ASTM G153, *Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials*

ASTM G155, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*

NFPA 30, *Flammable and Combustible Liquids Code*

NFPA 30A, *Automotive and Marine Service Station Code*

UL 157, *Gaskets and Seals*

UL 746C, *Polymeric Materials – Use in Electrical Equipment Evaluations*

UL 969, *Marking and Labeling Systems*

4 Glossary

4.1 For the purpose of this Standard the following definitions apply.

4.2 **BARRIER LINER** – The thin inner or outer layer of a composite pipe that contains internal fuels, provides permeation resistance, and protects the outer structural pipe wall from exposure to fuels or external fluids.

4.3 **CHASE PIPE** – An underground pipe that is used to route primary carrier, secondary containment, or integral primary/secondary pipe between storage tanks and containment sumps. Typically used to extract pipe without excavation and is not considered secondary containment.

4.4 **CLOSED SECONDARY CONTAINMENT PIPING SYSTEM** – A secondary piping system with ends normally closed at the tank and sump with a minimum rated pressure of 50 psig (350 kPa).

4.5 **FITTING** – A manufacturer-supplied component designed to connect, branch, or terminate pipe sections and contain liquids. Connections may be threaded, welded, crimped, clamped, compressed, thermo fused, solvent welded, or adhesive joined. Sump boots are not considered fittings.

4.6 **FLEXIBLE PIPING** – Pipe with a manufacturer's recommended minimum bend radius less than or equal to 6 feet (1.8 m). Typically constructed from thermoplastic materials.

4.7 **INTEGRAL** – Two or more separate components physically joined together or combined to form a single part at the manufacturer. Primary and secondary pipe joined in the field with a common fitting is not considered integral.

4.8 **INTEGRAL PRIMARY/SECONDARY PIPE** – A single pipe, constructed at the manufacturer, that combines both primary carrier and secondary containment with an interstitial space that can be monitored for leakage.

4.9 **METALLIC** – Pipe, fittings, or components primarily consisting of metals (typically corrosion-resistant malleable types such as steel, aluminum, copper, and brass) with or without minor nonmetallic components (such as gaskets, seals, sleeves or bushings).

4.10 **NON-INTEGRAL PRIMARY/SECONDARY PIPE** – A pipe system with independent primary carrier and secondary containment connected in the field with an interstitial space that can be monitored for leakage.

4.11 **NONMETALLIC** – Pipe, fittings, or components primarily consisting of nonmetals (typically polymeric thermoplastics, thermosets or composites) with or without minor metallic components (such as foils, braids, tapes, sleeves, or bushings).

4.12 **NORMAL VENT PIPE** – A pipe system intended to transfer displaced gases (air and fluid vapors) from the top of an underground tank to grade during filling and provide atmospheric pressure equalization.

4.13 **OPEN SECONDARY CONTAINMENT PIPING SYSTEM** – A secondary piping system with ends normally open at the sump and a minimum rated pressure of 5.0 psig (35 kPa).

4.14 **PIPE** – A long cylindrical thin-walled structure designed for the intended use of underground burial and conveying or containing liquids. The pipe structure may be formed from homogenous (single material), composite (multiple materials mixed together) or integral (individual materials joined as one component) elements.

4.15 **PIPE OR FITTING SIZE** – Nominal or trade size (inches or mm) based on inside diameters of pipe and fittings.

NOTE: Nominal or trade sizes may not be equivalent to the actual measurements.

4.16 **PIPING SYSTEM** – A combination of pipes and fittings joined to contain liquids transferred between a storage tank and sumps or dispensers (primary, secondary, or integral primary/secondary types) and vapor or air transfer between dispenser or tank to atmosphere (normal vent and vapor recovery types). The system may be primary, secondary, or an integral primary/secondary type. Also known as system.

4.17 **PRIMARY CARRIER PIPE** – Pipe intended to be in continuous contact with the liquid flowing in a piping system under normal use. Also known as carrier pipe, primary pipe, or product pipe.

4.18 **QUALIFIED PERSON** – A worker specifically trained by the manufacturer to perform proper installations of its piping systems in the field in accordance with the specified instructions. The qualified person is not required to be an employee of the manufacturer.

4.19 **RIGID PIPING** – Pipe with a manufacturers recommended minimum bend radius greater than 6 feet (1.8 m). Typically constructed from thermoset materials.

4.20 **SECONDARY CONTAINMENT PIPE** – Pipe intended to contain the liquid of a piping system during abnormal use (for example, primary carrier pipe leaks and sump or dispenser spills).

4.21 **SUMP** – Accessible atmospheric enclosure located underground, typically below a dispenser or above a tank, and designed to monitor leaks, contain spills and house connector pipe and control valves.

4.22 **UNDERGROUND** – Physically located below the surface layer of the earth in contact with soil (direct burial) or routed in a secondary or chase pipe (indirect burial). Underground does not include sump use more than 12 inches (30.5 cm) from the sump wall.

4.23 **VAPOR RECOVERY PIPE** – A pipe system intended to transfer collected gasses (air and fluid vapors) from a vacuum system to an underground tank during dispensing. Also known as vapor pipe.