UL 70

ISBN 0-7629-0690-1

Septic Tanks, Bituminous-Coated Metal

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333 Pfingsten Road
Northbrook, IL 60062-2096

UL Standard for Safety for Septic Tanks, Bituminous-Coated Metal, UL 70

Seventh Edition, Dated August 29, 2001

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New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

This Standard consists of pages dated as shown in the following checklist:

UL 70

Standard for Septic Tanks, Bituminous-Coated Metal

First Edition – June, 1958
Second Edition – December, 1961
Third Edition – June, 1970
Fourth Edition – August, 1974
Fifth Edition – December, 1979
Sixth Edition – June, 1993

Seventh Edition

August 29, 2001

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this Standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

ISBN 0-7629-0690-1

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FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire or of electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

INTRODUCTION

1 Scope

1.1 These requirements cover single and multiple compartment, bituminous-coated metal septic tanks for use in residential sewage systems.

1.2 The minimum liquid capacity of septic tanks covered by these requirements is 500 gallons (1985 L).

1.3 For the purpose of these requirements, a residential septic tank is an enclosed, watertight, sewage-settling tank intended to retain the solids in immediate contact with the sewage flowing through the tank for a period of time to secure satisfactory decomposition of settled solids by biochemical action.

1.4 The liquid capacity is the capacity of the tank below the bottom of the outlet when the tank is level.

2 Instructions

2.1 The manufacturer shall provide, with each septic tank, adequate instructions for installation and servicing.

2.2 The instructions shall include such directions and information as deemed by the manufacturer to be adequate for attaining proper installation, maintenance, and use of the product.

CONSTRUCTION

3 General

3.1 Components

3.1.1 Except as indicated in 3.1.2, a component of a product covered by this standard shall comply with the requirements for that component.

3.1.2 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 the product covered by this standard, or

b) Is superseded by a requirement in this standard.

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

3.1.4 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.

3.2 Units of measurement

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

3.3 Material

3.3.1 A tank shall be made of commercial-grade steel of suitable welding quality. Only new materials shall be used.

3.4 Thickness of metal

3.4.1 The thickness of sheet metal used in the construction of a tank and all other parts, including the baffles and partitions (where used), shall be No. 14 MSG, nominal thickness 0.075 inch (1.91 mm) or heavier.

3.4.2 The thickness of each piece is to be determined by five micrometer readings spaced equally along an edge of the full piece as rolled. Thickness is to be measured on the sheet not less than 3/8 inch (9.5 mm) from a cut edge and not less than 3/4 inch (19.1 mm) from a mill edge. No measurement is to indicate a thickness of less than 0.067 inch (1.70 mm).

3.5 Load

3.5.1 A tank shall be so constructed that it withstands a uniformly distributed vertical load of 150 pounds per square foot (732 kg/m^2) without permanent distortion.

3.6 Watertightness

3.6.1 A tank shall be constructed so as to be watertight. Fittings or covers or both shall be tight, when properly installed, to prevent the entrance of significant amounts of rain water, surface drainage, or ground water.

3.7 Workmanship

3.7.1 A tank shall be free from defects that affect its serviceability or durability.

3.8 Capacities

3.8.1 The liquid capacity of a single compartment tank shall not be less than 500 gallons (1895 L).

3.8.2 In a multiple-compartment tank, each compartment shall have a liquid capacity of at least 500 gallons (1895 L), except that the last or outlet compartment shall have a liquid capacity of not less than 250 gallons (948 L).

4 Single Compartment Tanks

4.1 Sizes and dimensions

4.1.1 The distance between the inlet and outlet openings in the tank wall, measured horizontally, shall not be less than 24 inches (610 mm). For other than a cylindrical tank, the smallest plan dimension shall not be less than 24 inches (610 mm).

4.2 Liquid depth

4.2.1 The design of a tank shall provide a minimum liquid depth of 30 inches (0.8 m) and a maximum liquid depth of 72 inches (1.8 m). The liquid depth is to be measured vertically from the point of overflow to the bottom of the tank.

4.2.2 At least 15 percent of the total volume of the tank shall be above the liquid level.

4.3 Baffles and fittings

4.3.1 Baffles shall be provided at both intake and outlet, and shall extend upward to within not less than 1/2 inch (12.7 mm) nor more than 1 inch (25.4 mm) from the top of the tank. For tanks with curved tops, the average clearance shall meet this requirement.

4.3.2 On the intake side, the baffle shall extend downward to at least 6 inches (152 mm) below the liquid level, and it shall not extend below the level of the outlet baffle.

4.3.3 On the outlet side, the baffle shall extend downward to a distance below the water surface equal to 40 percent of the liquid depth of a tank with vertical sides, and 35 percent of the liquid depth of a tank of another shape, as measured to the nearest inch (25.4 mm).

4.3.4 Intake and outlet openings shall have provision for accommodating either a 4-inch (102-mm) drain pipe or a 6-inch (152-mm) drain pipe. Means shall be provided to assure clearance between the pipe ends and the baffles of at least 5 inches (127 mm) for the inlet and at least 3 inches (76.2 mm) for the outlet, as measured parallel with the axis of the pipe. The inlet baffle shall not be closer than 3 inches (76.2 mm) to the pipe opening in any other direction. The bottom of the intake opening shall be located at least 1 inch (25.4 mm) above the overflow level of the outlet opening.

4.4 Access for cleaning and inspection

4.4.1 Access to tanks for cleaning and inspection shall be provided by a removable cover or by manholes. A manhole shall not be under 16 inches (406 mm) in its least dimension of opening and shall be located over the inlet and outlet baffles. Access openings shall permit complete visual inspection of the coating applied to the critical area [all interior surfaces, including the cover, above a point not less than 8 inches (203 mm) below the liquid level].

5 Multiple Compartment Tanks

5.1 Dimensions and limitations

5.1.1 A single tank shall be divided into a maximum of four compartments by means of internal metal partitions.

5.1.2 Each compartment shall conform to the dimensional limitations, 4.1.1; and to the liquid depth, 4.2.1. At least 15 percent of the total volume of the compartment shall be above the liquid level.

5.1.3 The intake opening and baffle in the first compartment, and the outlet opening and baffle in the last compartment, shall conform to 4.3.1 – 4.3.4.

5.1.4 Partitions shall be at right angles to the longitudinal horizontal center line of the tank, and shall form separate compartments within the tank that are connected by vent and flow openings in each partition, as follows:

a) Vent opening – An opening with its least dimension 1/2 inch (12.7 mm) or greater, and an area of between 12 and 30 square inches (77.4 and 193.6 cm^2), located at the extreme top of the partition.

b) Flow opening – An opening with its least dimension 4 inches (102 mm) or greater, and an area of between 12 and 30 square inches (77.4 and 193.6 cm^2); located with the bottom of the opening at a point within 1 inch (25.4 mm) above or below the level of the bottom of the outlet baffle in the last compartment.

5.2 Access for cleaning and inspection

5.2.1 Access to each compartment shall be provided by a manhole as specified in 4.4.1. The manholes in the first and last compartments shall be located over the tank inlet and outlet baffles.