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Underwriters Laboratories Inc.®

A not-for-profit organization dedicated to public safety
and committed to quality service

February 29, 1996

Revision pages for

Standard for

Special-Purpose Metal Containers

UL 1314, Third Edition

Attached to this transmittal notice is a revision of the Third edition of UL 1314.

A CHANGE ON A PAGE DATED FEBRUARY 29, 1996 IS INDICATED BY A SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED BY AN ASTERISK.

THESE NEW AND REVISED REQUIREMENTS ARE NOW IN EFFECT.

The new and revised requirements are substantially in accordance with UL's bulletins on this subject dated March 4, 1994 and November 17, 1995. These bulletins are now obsolete and may be discarded.

Attention is directed to the note on the title page of this standard outlining the procedure to be followed to retain the approved text of ANSI/UL 1314-1995.

Revised and/or additional pages may be issued from time to time.

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Page	Date
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UL 1314

Standard for

Special-Purpose Metal Containers

The first and second edition were titled Special-Purpose Containers.

First Edition – July, 1983
Second Edition – April, 1989

Third Edition

May 25, 1995

Approval as an American National Standard (ANSI) covers the numbered paragraphs on pages dated May 25, 1995. These pages should not be discarded when revised or additional pages are issued if it is desired to retain the ANSI approved text.

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

Approved as ANSI 1314-1988, June 30, 1988
Approved as ANSI 1314-1995, July 10, 1995

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 published set of revision pages.

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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 employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the 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.

8.8 A closure cap shall be of corrosion-resistant metal or of ferrous metal provided with a corrosion-resistant coating that complies with the requirements in Corrosion-Resistant Coatings, Section 13.

8.9 A cast closure-cap shall not be less than 3/32 inch (2.4 mm) thick. A sheet-metal cap shall not be less than 0.054 inch (1.4 mm) thick.

Exception: A drawn sheet-metal cap may not be less than 0.018 inch (0.46 mm) thick provided the cap is rolled.

8.10 A closure that incorporates a gasket or seal shall be recessed or provided with other means to retain the gasket or seal. If the gasket or seal is retained by a screw, the screw shall be provided with a washer. The screw and washer shall be of corrosion-resistant metal.

9 Springs

9.1 A spring shall be of corrosion-resistant metal or of steel provided with a corrosion resistant coating that complies with the requirements in Corrosion-Resistant Coatings, Section 13. The spring wire shall have a diameter of not less than 0.04 inch (1.0 mm).

10 Handles

10.1 A container shall be provided with a handle having a hand grip arranged for conveniently carrying the container.

10.2 A carrying handle shall not be more than 1-1/2 inches (38 mm) wide. The hand clearance shall not be less than 1 inch (25 mm) from the handle to the container surface and 3-1/2 inches (89 mm) from one handle support to the other.

10.3 An edge of a sheet-metal handle shall be hemmed, rolled, wired, or equivalently treated.

11 Attachment of Fittings

11.1 A closure (other than a removable spout or cap), a handle, or any other fitting shall be riveted, welded, brazed, or otherwise mechanically secured to the container.

11.2 The head of a rivet used to attach a fitting shall be on the inside of the container, and the rivet shall be headed over on the outside of the container against the fitting. A rivet head shall be completely sweated with solder.

12 Screens and Strainers

12.1 A screen or a strainer incorporated in the assembly of a container having only one opening shall be removable for cleaning.

12.2 A screen or a strainer shall be either made of corrosion-resistant material or provided with a corrosion-resistant coating that complies with the requirements in Corrosion-Resistant Coatings, Section 13.

13 Corrosion-Resistant Coatings

13.1 Industrial containers

13.1.1 The weight of coating on terne-coated sheet steel shall be at least as specified for coating designation LT35 in Table 1 of the Standard Specification for Steel, Sheet, Cold-Rolled, Long Terne Coated, ASTM A308-92. That is, the triple-spot coating weight shall not be less than 0.35 ounce per square foot (0.107 kg/m²) and the single-spot coating weight shall not be less than 0.25 ounce per square foot (0.076 kg/m²).

13.1.2 A coating on galvanized sheet steel shall comply with the coating designation G60 or A60 in Table I of the Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process, ASTM 6531/A653M-94. Not less than 40 percent of the zinc shall be on either side, as determined by the single-spot test described in ASTM A525. The coating shall be free from lumps, blisters, dross, and flux, and shall not flake or peel when formed.

13.1.3 The weight of a galvanized coating may be determined by any method. However, in case of question, coating weight is to be established in accordance with the Standard Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles, ASTM A90-81.

13.1.4 A cadmium plating on a spout, spring, pin, or the like, shall not be less than 0.0003 inch (0.008 mm) thick. A zinc plating on such parts shall not be less than 0.0005 inch (0.013 mm) thick.

13.1.5 A corrosion-resistant coating of a type other than those described in 13.1.1, 13.1.2, and 13.1.4 shall comply with Resistance-to-Corrosion Tests – Industrial Containers, Section 23. Also, see Organic-Coating Tests, Section 22.

13.2 Consumer containers

13.2.1 A coating for a consumer container shall:

- a) Comply with the requirements specified in 13.1.1 – 13.1.5, or
- b) Be a tin-plate coating that complies with Resistance-to-Corrosion Test – Consumer Containers, Section 24.

13.3 All containers

13.3.1 A corrosion-resistant coating shall not be damaged as a result of the manufacturing process.

14 Sheet Brass and Brass Rod

14.1 A part made from drawn brass or machined from brass rod shall be resistant to cracking.

14.2 A brass part that has a zinc content exceeding 15 percent shall be subjected to the 10-Day Moist Ammonia-Air Stress Cracking Test, Section 20A.

14.2 revised February 29, 1996

PERFORMANCE

15 Stability Test

15.1 A container shall be tested as described in 15.2 and shall not tip over.

15.2 The container is to be filled with liquid to its nominal capacity and placed on an inclined plane that forms an angle of 20 degrees with the horizontal. During the test, the container may be rotated to any position that may cause the container to tip over.

16 Nozzle-Leakage Test

16.1 A nozzle, whether integral or detachable, shall not leak when liquid is poured through it from the container.

17 Container-Leakage Tests

17.1 Hydrostatic-pressure test

17.1.1 A container that is provided with means to relieve internal pressure in excess of 5 psig (34 kPa) shall be subjected to a pressure of 5 psig for 1 minute as described in 17.1.3. The walls and joints, excluding valve seats, of the container shall not leak.

17.1.2 A container that is not provided with means to relieve internal pressure in excess of 5 psig (34 kPa) shall be subjected to a pressure of 20 psig (140 kPa) for 1 minute as described in 17.1.3. The walls and joints, excluding valve seats, of the container shall not leak.

17.1.3 The container is to be filled to its nominal capacity with water having a temperature of $23 \pm 3^{\circ}\text{C}$ ($75 \pm 5^{\circ}\text{F}$). Closures are to be secured and air at the specified pressure is then to be applied through an adapter secured to the container wall.

17.2 Vibration test

17.2.1 A container, including closures, shall be filled with water to its nominal capacity, vibrated for 2 hours, and then inverted for 5 minutes, as described in 17.2.2 – 17.2.7. The container shall not leak.

17.2.2 The container is to be placed in its intended shipping position, see 17.2.6, on the platform of a vibration machine. The container is to be attached to the platform by restraints that permit the container to freely move approximately 0.4 inch (10 mm) from center in any horizontal direction.

17.2.3 If an accelerometer is used to determine vibration level, it is to be attached to the platform so that it is close to, but will not be in contact with, the container.

17.2.4 Initially, the container is to be vibrated at a frequency of 2 hertz. The vibration frequency then is to be increased either until some portion of the container is repeatedly losing contact with the platform or until the acceleration of the platform equals 1.1 times the acceleration of gravity. The container is to be vibrated at this frequency for 2 hours or until the closures leak. The vibration may be stopped momentarily to permit inspection of the closures.

17.2.5 After 2 hours of vibration, the container is to be inverted for 5 minutes.

17.2.6 The container is to be tested in all possible shipping positions. However, a different sample is to be tested in each possible position.

17.2.7 At the conclusion of the test, the water level within the container is to be compared to the water level at the start of the test.

18 Strength Test

18.1 A container, excluding valve seats, shall be subjected to a hydrostatic pressure as specified in 18.2 and 18.3 for 1 minute. The container shall not rupture.

18.2 An industrial container is to be subjected to a hydrostatic pressure of 25 psig (170 kPa).

18.3 A consumer container is to be subjected to a hydrostatic pressure of 20 psig (138 kPa).

19 Handle-Strength Test

19.1 The handle of a container shall be tested as described in 19.2 and shall not crack, loosen, or detach from the container.

19.2 The container is to be filled to its nominal capacity with water and suspended from a rope. The rope is to be 3/8 inch (9.5 mm) in diameter, 6 feet (1.8 m) long, and made of manilla. The point from which the rope hangs is to be rigid. After being suspended for 1 minute, the container is to be raised 12 inches (305 mm) and then dropped. Closures are to be secured during the test.

20 Mercurous-Nitrate Immersion Test

Section 20 deleted February 29, 1996

20A 10-Day Moist Ammonia-Air Stress Cracking Test

Section 20A added February 29, 1996

20A.1 After being subjected to the conditions described in 20A.2 – 20A.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking when examined using 25X magnification.

20A.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and maintained during the test. Samples with threads intended to be used for installing the product in the field, are to have the threads engaged and tightened to the torque specified in Table 20A.1. Teflon tape or pipe compound are not to be used on the threads.

Table 20A.1
Torque requirements for threaded connections

Nominal thread size, inches	Torque	
	pound-inches	N · m
1	1200	(135.6)
1-1/4	1450	(163.8)
1-1/2	1550	(175.1)
2	1650	(186.4)
2-1/2	1750	(197.7)
3	1800	(203.4)

20A.3 Three samples are to be degreased and then continuously exposed in a set position for ten days to a moist ammonia-air mixture maintained in a glass chamber approximately 305 by 305 by 305 mm (12 by 12 by 12 inches) having a glass cover.

20A.4 Approximately 600 ml of aqueous ammonia having a specific gravity of 0.94 is to be maintained at the bottom of the glass chamber below the samples. The samples are to be positioned 1-1/2 inches (38.1 mm) above the aqueous ammonia solution and supported by an inert tray. The moist ammonia-air mixture in the chamber is to be maintained at atmospheric pressure and at a temperature of $93.2 \pm 3.6^{\circ}\text{F}$ ($34 \pm 2^{\circ}\text{C}$).

21 Physical Property Tests on Gaskets and Seals

21.1 A nonmetallic gasket or an elastomeric seal shall be tested as described in 21.2. The change of physical properties of the gasket or seal shall comply with the values specified in Table 21.1.

Exception: A gasket or seal that cannot come in contact with the liquid stored in the container need not comply with this requirement.

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