UL 2368

STANDARD FOR SAFETY

Fire Exposure Testing of Rigid Nonmetallic and Composite Nonmetallic Intermediate Bulk Containers for Combustible Liquids

UL Standard for Safety for Fire Exposure Testing of Rigid Nonmetallic and Composite Nonmetallic Intermediate Bulk Containers for Combustible Liquids, UL 2368

Third Edition, Dated October 23, 2023

Summary of Topics

This new Third Edition of ANSI/UL 2368 dated October 23, 2023 includes updates to Fire Performance Testing requirements and incorporates editorial changes to update the format to align with current style.

The requirements are substantially in accordance with Proposal(s) on this subject dated July 17, 2023 and September 1, 2023.

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Standard for Fire Exposure Testing of Rigid Nonmetallic and Composite Nonmetallic Intermediate Bulk Containers for Combustible Liquids

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Second Edition – January, 2012

Third Edition

October 23, 2023

This ANSI/UL Standard for Safety consists of the Third Edition.

The most recent designation of ANSI/UL 2368 as an American National Standard (ANSI) occurred on October 23, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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 https://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 This Standard includes fire test methods and associated requirements to investigate the ability of rigid nonmetallic or composite rigid nonmetallic intermediate bulk containers (IBCs) to contain combustible liquids when exposed to fire while protected with an automatic wet-pipe sprinkler system installed in accordance with the Flammable and Combustible Liquids Code, NFPA 30.

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this Standard is to comply with the requirements for that component.

2.2 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b) Is superseded by a requirement in this Standard.

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

2.4 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 Units of Measurement

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

4 Referenced Publications

4.1 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.

4.2 The following publications are referenced in this Standard:

ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*

NFPA 30, *Flammable and Combustible Liquids Code*

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

5 Glossary

5.1 For the purposes of this Standard, the following definitions apply.

5.2 INTERMEDIATE BULK CONTAINER (IBC) – Department of Transportation (DOT) approved shipping container manufactured and marked in accordance with Title 49, Code of Federal Regulations, Part 178; and United Nations Designation 31H1, 31H2, or 31HZ1.

5.3 LEAKAGE – The loss of any liquid from an IBC at a location below its full liquid level.

5.4 STRUCTURAL INTEGRITY – The ability of the IBC to remain in an upright position without toppling over or leaning more than 6 inches (15 cm) or 5°, from a vertical plane, whichever is greater.

CONSTRUCTION

6 General

6.1 IBCs covered by this Standard shall have a capacity not exceeding 793 gallons (3000 L) and marked in accordance with 5.2.

6.2 IBCs shall be provided with a valve cap seal.

6.3 IBCs having the valve cap seal broken are not covered by this Standard.

PERFORMANCE

7 General

7.1 Samples representative of each IBC are to be subjected to the following tests. The largest capacity unit is to be evaluated. Similar smaller-sized units need not be evaluated unless their wall thickness is less than that of a larger unit that has been tested with acceptable results.

8 Material Tests

8.1 Test samples of polymeric materials used to construct an IBC are to be subjected to a cone calorimeter test described in ASTM E1354, for identification purposes.

Exception: Polymeric materials that comply with UL 746C, need not be subjected to this test.

9 Fire Performance Tests

9.1 An IBC shall show no evidence of leakage or loss of structural integrity as described in Section 5, Glossary, when subjected to the fire performance test described in Section 10.

10 Fire Performance Tests

10.1 The fire performance tests are to be conducted in an enclosed test cell having a smooth, flat 30-ft (9.2-m) high ceiling. A sprinkler system utilizing four open nominal K=11.2 upright sprinklers installed on a nominal 8-by-10 ft. (2.4-by-2.5 m) spacing, is to be installed with the sprinkler deflectors 3 – 6 inches (76.2 – 152.4 mm) below the ceiling. The piping system is to be connected to a water capable of flowing water to maintain a 0.60-gpm/ft^2 (24.5 mm/min) discharge density.

10.2 A 50-ft^2 (4.6-m^2) square steel test tray at least 10 inches high is to be centered below the four sprinklers and fitted with a solid flat steel platform to provide a 2-ft (0.6-m) open area along 2 adjacent sides of the tray. See Figure 10.1. Water is to be added to the tray so as to maintain a liquid level within 1 – 2 inches (2.5 – 5.0 cm) below the platform which is resting directly on top of the tray. The test tray is then to be fitted with a fuel supply pipe with the discharge end positioned at least 1 inch (2.5 cm) below the water.