UL 2208

STANDARD FOR SAFETY

Solvent Distillation Units

UL Standard for Safety for Solvent Distillation Units, UL 2208

Fourth Edition, Dated May 29, 2025

Summary of Topics

This new Fourth Edition of ANSI/UL 2208 dated May 29, 2025 incorporates editorial changes including renumbering and reformatting to align with current style.

The new requirements are substantially in accordance with Proposal(s) on this subject dated March 21, 2025.

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Standard for Solvent Distillation Units

First Edition –September, 1996
Second Edition – February, 2005
Third Edition – July, 2010

Fourth Edition

May 29, 2025

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

The most recent designation of ANSI/UL 2208 as an American National Standard (ANSI) occurred on May 29, 2025. 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 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 solvent distillation units, with a maximum capacity of 60 gallons (227 L), used for recycling flammable or combustible liquids as indicated in the instruction manual provided with each unit.

1.2 These requirements cover solvent distillation units which utilize electricity, steam, or heated liquids to distill solvents.

1.3 These units are intended for installation and use in accordance with the following:

a) NFPA 70®, *National Electrical Code®* (NEC®);

NFPA 70®, *National Electrical Code®*, and NEC® are registered trademarks of the National Fire Protection Association, Quincy, MA.

b) Flammable and Combustible Liquids Code, NFPA 30;

c) Standard for Spray Application Using Flammable or Combustible Materials, NFPA 33;

d) Fire Code, NFPA 1; and

e) International Fire Code, IFC.

1.4 Solvent distillation units investigated for use in laboratories are only intended for installation in facilities that comply with requirements of the Standard for Fire Protection for Laboratories Using Chemicals, NFPA 45.

1.5 Solvent distillation units investigated for use in commercial dry cleaning plants are intended for installation in accordance with requirements of the Standard for Drycleaning Plants, NFPA 32.

1.6 Requirements additional to those specified in this Standard are necessary as follows:

a) Electrically powered steam generating units having an electrical input power rating of more than 15 kW per steam generating vessel shall also comply with the applicable requirements in the Standard for Heating, Water Supply, and Power Boilers – Electric, UL 834;

b) Units intended for use in dry cleaning establishments shall also comply with applicable requirements of the Standard for Drycleaning Plants, NFPA 32;

c) Units intended for use in laboratory work areas shall also comply with applicable requirements of the following standards:

1) Standard for Medical Electrical Equipment, Part 1: General Requirements for Safety, UL 60601-1;

2) Standard for Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements, UL 61010-1;

3) Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements, IEC 61010-1;

4) Fire Protection for Laboratories Using Chemicals, NFPA 45; and

5) Health Care Facilities, NFPA 99.

d) Units intended for use in commercial garages shall comply with the applicable requirements of Article 511 of NFPA 70®, *National Electrical Code*® (NEC®), and of the Standard for Garage Equipment, UL 201;

e) Units intended for use in aircraft hangars shall comply with the applicable requirements of Article 513 of NFPA 70®, *National Electrical Code*® (NEC®); and

f) Units intended for use in dispensing and service stations shall comply with the applicable requirements of Article 514 of NFPA 70®, *National Electrical Code*® (NEC®).

1.7 These requirements do not apply to:

a) Carbon-bed units;

b) Units intended to be installed outdoors;

c) Units used to distill solvents classified as unstable or solvents used for nitrocellulose or other unstable reactives;

d) Units intended for high volume distillation processes or equipment typical of the petrochemical or distilled spirits industries;

e) The storage, use, and disposal of any flammable or combustible liquids or hazardous materials used with or produced by the equipment

f) The physiological effects of using the equipment with solvents or hazardous waste; or

g) Units used in processing plant material for extraction of the oil. These units shall comply with the applicable requirements UL/ULC 1389, Standard for Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations.

2 Components

2.1 A component of a product covered by this Standard shall:

a) Comply with the requirements for that component as specified in this Standard;

b) Be used in accordance with its rating(s) established for the intended conditions of use;

c) Be used within its established use limitations or conditions of acceptability.

2.2 A component of a product covered by this Standard 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;

b) Is superseded by a requirement in this Standard; or

c) Is separately evaluated when forming part of another component, provided the component is used within its established ratings and limitations.

2.3 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.

2.4 A component that is also intended to perform other functions such as overcurrent protection, ground-fault circuit-interruption, surge suppression, any other similar functions, or any combination thereof, shall comply additionally with the requirements of the applicable standard(s) that cover devices that provide those functions.

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 D5, *Standard Test of Penetration for Bituminous Materials*

ASTM D56, *Standard Test Method for Flash Point by Tag Closed Cup Tester*

ASTM D93, *Standard Test Method for Flash Point by the Pensky-Martens Closed Cup Tester*

ASTM D3278, *Standard Test Method for Flash Point of Liquids by Small Scale Closed-Cup Apparatus*

ASTM D3828 REV A, *Standard Test Method for Flash Point by Small Scale Closed Tester*

ASTM E28, *Standard Test Method for Softening Point of Resins Derived from Pine Chemicals and Hydrocarbons, by Ring-and-Ball Apparatus*

ASTM E659, *Standard Test Method for Autoignition Temperature of Liquid Chemicals*

IEC 61010-1, *Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements*

International Fire Code, IFC

ISA 12.12.01, *Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2 Hazardous (Classified) Locations*

NFPA 1, *Fire Code*

NFPA 30, *Flammable and Combustible Liquids Code*

NFPA 32, *Standard for Drycleaning Plants*

NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*

NFPA 45, *Standard for Fire Protection for Laboratories Using Chemicals*

NFPA 70®, *National Electrical Code®* (NEC®)

NFPA 99, *Health Care Facilities*

NFPA 496, *Standard for Purged and Pressurized Enclosures for Electrical Equipment*

UL 157, *Gaskets and Seals*

UL 201, *Garage Equipment*

UL 674, *Electric Motors and Generators for Use in Hazardous (Classified) Locations*

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

UL 796, *Printed Wiring Boards*

UL 817, *Cord Sets and Power-Supply Cords*

UL 823, *Electric Heaters for Use in Hazardous (Classified) Locations*

UL 834, *Heating, Water Supply, and Power Boilers – Electric*

UL 840, *Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment*

UL 913, *Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous (Classified) Locations*

UL 969, *Marking and Labeling Systems*

UL 1203, *Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations*

UL 1581, *Reference Standard for Electrical Wires, Cables, and Flexible Cords*

UL 60601-1, *Medical Electrical Equipment, Part 1: General Requirements for Safety*

UL 61010-1, *Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements*

UL/ULC 1389, *Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations*

5 Glossary

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

5.2 AUTOIGNITION TEMPERATURE – The minimum temperature at which fuel-air mixtures will ignite spontaneously. This temperature is to be determined either at atmospheric pressure (14.7 psig) or at the maximum pressure present in the area of the fuel-air mixture, whichever is higher. At atmospheric pressure, the autoignition temperature of a solvent shall be determined in accordance with ASTM E659.

5.3 BATCH TYPE UNIT – A unit that distills a single batch of solvent at a time. Dirty solvent is poured or otherwise manually introduced into the unit from a container, safety can, or similar vessel. After