



UL 842A

STANDARD FOR SAFETY

Valves for Gasoline and Gasoline/Ethanol Blends
with Nominal Ethanol Concentrations up to 85
Percent (E0 – E85)

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UL Standard for Safety for Valves for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85), UL 842A

First Edition, Dated February 18, 2015

Summary of Topics

This first edition of the Standard for Valves for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85), ANSI/UL 842A, covers valves that are intended to be used for the control of fluids and their vapors. They are of the type commonly used in piping systems and in the assembly of motor fuel dispensing equipment.

The requirements are substantially in accordance with Proposal(s) on this subject dated October 17, 2014.

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The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

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February 18, 2015

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ANSI/UL 842A-2015

UL 842A

**Standard for Valves for Gasoline and Gasoline/Ethanol Blends with
Nominal Ethanol Concentrations up to 85 Percent (E0 – E85)**

Prior to the first edition, the requirements for the products covered by this standard were included in the Outline of Investigation for Valves for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 – E85), UL 842A.

First Edition

February 18, 2015

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

The most recent designation of ANSI/UL 842A as an American National Standard (ANSI) occurred on February 18, 2015. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

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 <http://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These requirements cover valves that are intended to be used for the control of fluids and their vapors for the fluids indicated in 1.2. They are of the type commonly used in piping systems and in the assembly of motor fuel dispensing equipment. Valves covered by this standard are for use with flammable fluids which are handled at temperatures normally within the range of minus 29°C (minus 20°F) to 52°C (125°F).

1.2 Valves covered by these requirements are intended for use with one or more of the following as applicable:

- a) Gasoline formulated in accordance with the Standard Specification for Automotive Spark-Ignition Fuel, ASTM D4814;
- b) Gasoline/ethanol blends with nominal ethanol concentrations up to 25% ethanol (E25), consisting of gasoline formulated in accordance with the Standard Specification for Automotive Spark-Ignition Fuel, ASTM D4814, when blended with denatured fuel ethanol formulated to be consistent with the Standard Specification for Denatured Fuel Ethanol for Blending With Gasolines For Use as Automotive Spark-Ignition Engine Fuel, ASTM D4806; or
- c) Gasoline/ethanol blends with nominal ethanol concentrations above 25% formulated in accordance with the Standard Specification in item (b) or formulated in accordance with the Standard Specification for Ethanol Fuel Blends for Flexible-Fuel Automotive Spark-Ignition Engines, ASTM D5798.

1.3 These requirements cover valves of the manually operated, pressure operated, or temperature operated types, or combinations of such to the exclusion of types operated wholly or partially by electricity. When they form a part of an assembly which provides for additional functions or service, the requirements are outside the scope of these requirements.

1.4 These requirements do not cover the following:

- a) Valves for handling liquids under cryogenic conditions;
- b) Valves for general refinery service, offshore and pipe line terminals, natural gas processing plants, gas distribution systems, petrochemical processing facilities, or the like;
- c) Constant-level oil valves and electrically operated valves;
- d) Relief valves and pressure regulators for liquefied petroleum gas (LP-Gas) service;
- e) Shutoff, emergency shutoff and check valves for liquefied petroleum gas (LP-Gas) in the liquid phase;
- f) Manually operated gas valves of the plug and body or rotating disc type which are evaluated under the Standard for Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves, ANSI Z21.15;
- g) Valves covered by the Standard for Gas Appliance Pressure Regulators, ANSI Z21.18; the Standard for Automatic Valves for Gas Appliances, ANSI Z21.21; or the Standard for Gas Appliance Thermostats, ANSI Z21.23;

- h) Hose nozzles;
- i) Valves covered by the Standard for Manually Operated Metallic Gas Valves for Use in Gas Piping Systems up to 125 PSI (Sizes NPS 1/2 through NPS 2), ANSI/ASME B16.33 and Manually Operated Metallic Gas Valves for Use in Aboveground Piping Systems up to 5 PSI, ANSI/ASME B16.44;
- j) Manually operated valves for diesel fuel, biodiesel fuel, diesel/biodiesel blends, kerosene, or fuel oil, which are covered under the Standard for Valves for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil, UL 842B;
- k) Manually operated valves for LP-Gas, which are covered under the Standard for Valves for Flammable Fluids, UL 842.

2 General

2.1 Components

2.1.1 Except as indicated in 2.1.2, a component of a product covered by this standard shall comply with the requirements for that component.

2.1.2 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.

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

2.1.4 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.

2.2 Units of measurement

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

2.3 Undated references

2.3.1 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 Glossary

3.1 For the purpose of this standard, the following definitions apply.

3.2 **BLENDING OPTION** – Dispensing devices may be provided with an option that blends two specific fuels into one fuel to be dispensed. This blending occurs at the dispenser level and can be in two forms:

a) **Fixed blending** – Blending at the dispenser level that blends two specific fuels into one fuel to be dispensed, and that fuel to be dispensed is fixed. For example, fixed blending includes blend options where gasoline and denatured fuel ethanol can be blended to achieve E85, which is the actual dispensed fuel.

b) **Variable blending** – Blending at the dispenser level that blends two specific fuels into the fuel to be dispensed, but the fuel to be dispensed can be any of a number of previously set points. For example, variable blending includes blend options where gasoline and E85 can be blended to achieve E40, E60, and E85 as the actual dispensed fuel.

3.3 **EMERGENCY SHUTOFF VALVES** – Valves intended for installation at the inlet of remote control type flammable liquid dispensing devices. They are normally held open by a mechanical holding means. They incorporate a fusible element and close automatically in the event of exposure to fire or break-off resulting from severe impact. They are designed for an operating pressure of not less than 50 psi (345 kPa).

3.4 **FUSIBLE LINK VALVES** – Valves intended for use in lines conveying fuel gas or fuel oil which function to close when the temperature in the vicinity of the valve exceeds the fusing temperature of the fusible element.

3.5 **GASOLINE/ETHANOL BLENDS** – Blended fuels composed of a gasoline component and an ethanol component. The numerical value corresponding to the ethanol component determines the blend rating (such as E85 for 85% ethanol, 15% gasoline).

3.6 **SEALS, DYNAMIC** – A seal that is subject to mechanical movement or other applied forces that result in movement or flexing of the seal under normal use conditions.

3.7 **SEALS, STATIC** – A seal that is not subject to mechanical movement or other applied forces other than compression forces that are applied during installation and maintained during normal use conditions.