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Power-Operated LP-Gas Dispensing Equipment

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Standard for Safety for Power-Operated LP-Gas Dispensing Equipment

Second Edition, Dated December 14, 2022

Summary of Topics:

This new edition of the Standard for Power-Operated LP-Gas Dispensing Equipment, dated December 14, 2022, is a harmonized UL and Canadian Standard.

Commitment for Amendments

This standard is issued jointly by the Canadian Standards Association (operating as “CSA Group”) and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to CSA Group or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of CSA Group and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue.

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This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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

The most recent designation of ANSI/UL 495 as an American National Standard (ANSI) occurred on December 14, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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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PREFACE

This is the harmonized CSA Group and UL standard for Power-Operated LP-Gas Dispensing Equipment. It is the second edition of CSA 12.4, and the fifth edition of UL 495. This edition of CSA 12.4 supersedes the previous edition published April 1984. This edition of UL 495 supersedes the previous edition published April 2016.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Subcommittee, Power-Operated LP-Gas Dispensing Equipment are gratefully acknowledged.

This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

This standard was reviewed by the CSA Subcommittee on Dispensing Devices for Propane Fuel for Highway Vehicles, under the jurisdiction of the CSA Technical Committee on Propane Autogas and the CSA Strategic Steering Committee on Requirements for Transportation, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with the Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of Harmonization

This standard uses the IEC format but is not based on, nor is it considered equivalent to, an IEC standard.

This standard is published as an equivalent standard for CSA Group and UL.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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INTRODUCTION

1 Scope

1.1 These requirements cover power-operated equipment for dispensing liquefied petroleum gas into the fuel storage container of a vehicle where the gas is primarily used as an engine fuel.

1.2 The electrical features of power-operated dispensers are as described:

a) In the United States: UL 1238, Standard for Control Equipment for Use with Flammable Liquid and LP-Gas Dispensing Devices;

b) In Canada: CSA C22.2 No. 22, Electrical equipment for flammable and combustible fuel dispensers.

1.3 These requirements cover wiring methods used to install or interconnect control equipment when the equipment is located directly on or within the housing of the dispensing device.

1.4 These requirements do not cover control equipment that could authorize, monitor, or interrupt operation of a power-operated dispensing device or the filling of LP-Gas portable containers. Such equipment includes mounted equipment located adjacent to the dispensing device, remote consoles located inside a permanent structure, and auxiliary equipment physically attached to the dispensing device or enclosed by the housing.

1.5 Products covered by this Standard are intended to be installed and used in accordance with the applicable Codes and Regulations as determined by the Authority Having Jurisdiction (AHJ), such as, but not limited to:

a) In the United States:

1) Liquefied Petroleum Gas Code, NFPA 58; and

2) National Electrical Code, NFPA 70

b) In Canada:

1) Natural gas and propane installation code, CSA B149.1;

2) Propane storage and handling code, CSA B149.2;

3) Canadian Electrical Code, Part I Safety Standard for Electrical Installations, CSA C22.1; and

4) Other Provincial or Territorial Regulations.

Note: For the purposes of this Standard, the terms "Liquefied Petroleum Gas", "LP-Gas", and "Propane" are interchangeable.

2 Components

2.1 Except as indicated in [2.2](#), a component of a product covered by this Standard shall 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.

3 Units of measurement

3.1 The values given in SI (metric) units shall be normative. Any other values given shall be for information purposes only.

4 Reference publications

4.1 For undated references to Codes or Standards, such reference shall be considered to refer to the latest edition and all revisions to that edition up to the time when this Standard was approved.

ASME B1.20.1, *Pipe Threads, General Purpose (Inch)*

ANSI/ASME B16.26, *Cast Copper Alloy Fittings for Flared Copper Tubes*

ASME B36.10M, *Welded and Seamless Wrought-Steel Pipe*

ASTM A47/A47M, *Standard Specification for Ferritic Malleable Iron Castings*

ASTM A48/A48M, *Standard Specification for Gray Iron Castings*

ASTM A53/A53, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*

ASTM A106/A106M, *Standard Specification for Seamless Carbon Steel Pipe for High Temperature Service*

ASTM A126, *Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings*

ASTM A213/A213M, *Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes*

ASTM A249/A249M, *Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes*

ASTM A269/A269M, *Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service*

ASTM A395/A395M, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*

ASTM A536, *Standard Specification for Ductile Iron Castings*

ASTM A539, *Standard Specification for Electric-Resistance Welded Coiled Steel Tubing for Gas and Fuel Oil Lines*

ASTM B42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*

ASTM B43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*

ASTM B88, *Standard Specification for Seamless Copper Water Tube*

ASTM B135/B135M, *Standard Specification for Seamless brass tube*

ASTM B280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*

ASTM B858, *Standard Test Method for Ammonia Vapor Test for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys*

ASTM D471, *Standard Test Method for Rubber Property-Effect of Liquids*

ASTM D572, *Standard Test Method for Rubber Deterioration by Heat and Oxygen*

ASTM D1790, *Standard Test Method for Brittleness Temperature of Plastic Sheeting by Impact*

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

ASTM E145, *Standard Specification for Gravity-Convection and Forced-Ventilation Ovens*

CSA B149.1, *Natural gas and propane installation code*

CSA B149.2, *Propane storage and handling code*

CSA C22.1, *Canadian Electrical Code, Part I Safety Standard for Electrical Installations*

CSA C22.2 No. 0, *General requirements – Canadian Electrical Code, Part II*

CSA C22.2 No. 0.15, *Adhesive Labels*

CAN/CSA-C22.2 No. 0.17, *Evaluation of Properties of Polymeric Materials*

CSA 8.1, *Elastomeric composite hose and hose couplings for conduction propane and natural gas*

CSA 8.3, *Thermoplastic Hose and Hose Couplings for Conducting Propane and Natural Gas*

CSA-C22.2 No. 22, *Electrical Equipment for Flammable and Combustible Fuel Dispensers*

CSA C22.2 No. 25, *Enclosures for use in Class II, Division 1, Groups E, F, and G hazardous locations*

CSA C22.2 No. 30, *Explosion-proof equipment*

CSA C22.2 No. 45.1, *Electrical Rigid Metal Conduit – Steel*

CSA C22.2 No. 45.2, *Electrical Rigid Metal Conduit – Aluminum, Red Brass, and Stainless Steel*

CSA C22.2 No. 56, *Flexible metal conduit and liquid-tight flexible metal conduit*

CSA C22.2 No. 65, *Wire connectors*

CSA C22.2 No. 145, *Electric motors and generators for use in hazardous (classified) locations*

CSA C22.2 No. 207, *Portable and stationary electric signs and displays*

CSA C22.2 No. 213, *Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations*

CSA C22.2 No. 60079-11, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “I”*

CAN/CSA-C22.2 No. 60079-15, *Explosive atmospheres - Part 15: Equipment protection by type of protection “n”*

SAE J512, *Automotive Tube Fittings*

SAE J513, *Refrigeration Tube Fittings – General Specifications*

UL 1, *Flexible Metal Conduit*

UL 6, *Electrical Rigid Metal Conduit – Steel*

UL 6A, *Electrical Rigid Metal Conduit – Aluminum, Red Brass and Stainless Steel*

UL 21, *LP-Gas Hose*

UL/ULC 25, *Meters for Flammable and Combustible Liquids and LP-Gas*

UL 48, *Electric Signs*

UL 51, *Power-Operated Pumps and Bypass Valves for Anhydrous Ammonia, LP-Gas, and Propylene*

UL 94, *Tests for Flammability of Plastic Materials for Parts in Devices and Appliances*

UL 109, *Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service, and Marine Use*

UL/ULC 125, *Flow Control Valves for Anhydrous Ammonia and LP – Gas*

UL 132, *Relief Valves for Anhydrous Ammonia and LP-Gas*

UL 331, *Strainers for Flammable Fluids and Anhydrous Ammonia*

UL 429, *Electrically Operated Valves*

UL 486A-486B, *Wire Connectors*

UL 536, *Flexible Metallic Hose*

UL/ULC 567, *Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas*

UL 569, *Pigtails and Flexible Hose Connectors for LP-Gas*

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