



# UL 154

## STANDARD FOR SAFETY

### Carbon-Dioxide Fire Extinguishers



UL Standard for Safety for Carbon-Dioxide Fire Extinguishers, UL 154

Ninth Edition, Dated February 28, 2005

### **Summary of Topics**

***This revision to ANSI/UL 154 dated March 9, 2021 includes a Nameplate Abrasion Test Update; [44.2](#) and [44.3](#)***

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated August 21, 2020.

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## Carbon-Dioxide Fire Extinguishers

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The most recent designation of ANSI/UL 154 as an American National Standard (ANSI) occurred on March 9, 2021. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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## Preface

This is the common UL and ULC Standard for Carbon-Dioxide Fire Extinguishers. It is the Fourth edition of CAN/ULC-S503, and the Ninth edition of ANSI/UL 154.

This Joint Standard was prepared by Underwriters Laboratories Inc., ULC Standards, and the UL/ ULC Extinguisher Technical Harmonization Committee. The efforts and support of the Harmonization Technical Committee are gratefully acknowledged.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

**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 is published as an identical standard between UL and ULC Standards. An identical standard is a standard that is the same in technical content except for conflicts in Codes and Governmental Regulations. Presentation shall be word for word except for editorial changes.

### Interpretations

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

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## INTRODUCTION

### 1 Scope

1.1 These requirements cover the construction and performance, exclusive of performance during fire tests, of portable carbon-dioxide fire extinguishers. Carbon-dioxide fire extinguishers are intended to be utilized in accordance with the Standard for Portable Fire Extinguishers, NFPA 10 and the National Fire Code of Canada.

1.2 The requirements for performance during fire testing of carbon-dioxide fire extinguishers are specified in the Binational Standard for Rating and Fire Testing of Fire Extinguishers, ANSI/UL 711 CAN/ULC-S508.

1.3 As used in these requirements, the term "extinguisher" refers to all extinguishers or any part thereof covered by these requirements, unless specifically noted otherwise.

### 2 Units of Measurement

2.1 The metric unit shall be designated as the official unit for purposes of this standard. Where values of measurement are specified in both SI and English units, either unit is used. In cases of dispute, the metric unit shall be used.

### 3 Reference Publications

3.1 See Annex [A](#) for a list of publications referenced in this standard. 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. When the latest edition of a standard is not applicable, the appropriate edition is indicated accordingly in Annex [A](#).

### 4 Components

4.1 Except as indicated in [4.2](#), a component of a product covered by this standard shall comply with the requirements for that component. A component shall comply with both the Underwriters Laboratories Inc. and the Underwriters' Laboratories of Canada standards for the component.

4.2 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.

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

4.4 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.

### 5 Glossary

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

5.2 DISPOSABLE (NONRECHARGEABLE) FIRE EXTINGUISHER – A fire extinguisher not capable of nor intended to undergo complete maintenance including internal inspection of cylinder, replacement of parts and seals and hydrostatic testing.

5.3 EFFECTIVE DISCHARGE – The time of discharge of an extinguishing agent from the extinguisher until gas point.

5.4 GALVANIC COMPATIBILITY – Fire extinguisher cylinder and component parts, which are not susceptible to 10-day, stress corrosion cracking nor corrosion from combination of dissimilar materials.

5.5 GAS POINT – The point in time when the combined snow and gas discharge changes into a purely gaseous condition.

5.6 PORTABLE FIRE EXTINGUISHER – A fire extinguisher carried or on wheels and operated by hand.

5.7 RECHARGEABLE (REFILLABLE) FIRE EXTINGUISHER – A fire extinguisher capable of undergoing complete maintenance including internal inspection of cylinder, replacement of parts and seals and hydrostatic testing.

## CONSTRUCTION

### 6 General

6.1 The construction of an extinguisher shall be such that the method of operation is obvious after observing the operating instructions.

6.2 The construction of an extinguisher shall be such that after discharge of the agent is initiated, the operator of the extinguisher is not required to take further manual actions to maintain the maximum possible flow of agent, other than holding the operating device in the fully opened position. The extinguisher shall be usable by one operator, without assistance from a second individual.

6.3 An extinguisher having a capacity of 2.3 kg (5 lb) mass or more of carbon dioxide shall stand in the upright position without support.

6.4 A material for an extinguisher part, the deterioration of which causes the extinguisher to become inoperable or results in the risk of injury to persons, shall not be susceptible to stress corrosion.

6.5 A polymeric or other nonmetallic part, other than an "O" ring or gasket, shall be evaluated on the basis of:

a) Mechanical strength, including resistance to impact, see Handle and Mounting Device Test, Clause [24](#); Hydrostatic Pressure Test, Clause [30](#); Vibration Test, Clause [33](#); Roadability and Rough Usage Tests, Clause [34](#); Nameplate Exposure Tests, Clause [42](#);

b) Moisture absorption; see Salt Spray Corrosion Test, Clause [39](#); One-Year Time Leakage Test, Clause [41](#); Nameplate Exposure Tests, Clause [42](#);

c) Flammability, see [6.6](#);

d) Resistance to deterioration due to aging, see Aging Tests – Polymeric Materials, Clause [37](#); One-Year Time Leakage Test, Clause [41](#); Nameplate Exposure Tests, Clause [42](#);

e) Exposure to light and water, see [37.3](#) and Nameplate Exposure Tests, Clause [42](#).