CAN/ULC-S514-14-R2019
(Reaffirmed 2019)

STANDARD FOR DRY CHEMICAL FOR USE IN HAND AND WHEELED FIRE EXTINGUISHERS

ULC Standards
Normes ULC

Standards Council of Canada
Conseil canadien des normes

Underwriters Laboratories of Canada (ULC) was established in 1920 by letters patent issued by the Canadian Government. It maintains and operates laboratories and certification services for the examination, testing and certification of appliances, equipment, materials, constructions and systems to determine their relation to life, fire and property hazards as well as providing inspection services.

ULC Standards develops and publishes standards and other related publications for building construction, security and burglar protection, environmental safety, electrical equipment, fire protection equipment, gas and oil equipment, thermal insulation products, materials and systems, energy use in the built environment and electrical utility safety.

ULC Standards is a not-for-profit organization and is accredited by the Standards Council of Canada as a Standards Development Organization.

National Standards of Canada developed by ULC Standards conform to the criteria and procedures established by the Standards Council of Canada. Such standards are prepared using the consensus principle by individuals who provide a balanced representation of interests relevant to the subject area on a national basis.

National Standard of Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

For further information on ULC standards, please contact:

ULC STANDARDS
171 Nepean Street, Suite 400
Ottawa, Ontario K2P 0B4
Telephone: (613) 755-2729
To purchase ULC Standards, visit: www.ulc.ca/ulcstandards

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for the particular application.

Copies of this National Standard of Canada may be ordered from ULC Standards.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE

Standard for Dry Chemical For Use in Hand and Wheeled Fire Extinguishers, CAN/ULC-S514

Third Edition, Dated August 2014

Summary of Topics

This revision of CAN/ULC-S514 is being issued to update the title page to reflect the reaffirmation of this Third Edition National Standard of Canada. No changes in requirements are involved.

The requirements are substantially in accordance with Proposal(s) on this subject dated March 8, 2019.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

No Text on This Page

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

CAN/ULC-S514-14-R2019

STANDARD FOR DRY CHEMICAL FOR USE IN HAND AND WHEELED FIRE EXTINGUISHERS

ICS 13.220.10

ULC Standards
Normes ULC

Standards Council of Canada
Conseil canadien des normes

First Edition . . . . . March 1988
Second Edition . . . . . April 2007
THIRD EDITION . . . . . AUGUST 2014
REAFFIRMED . . . . . SEPTEMBER 13, 2019

Copyright © 2019

ULC Standards

All rights reserved. No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior permission.

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

No Text on This Page

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

CONTENTS

ULC STANDARDS COMMITTEE ON PORTABLE FIRE EXTINGUISHERS 7

PREFACE 9

1 SCOPE 11
2 REFERENCE PUBLICATIONS 11
3 GENERAL REQUIREMENTS 12
4 DETAIL REQUIREMENTS 12
5 TEST METHODS 13
5.1 SAMPLES 13
5.2 MOISTURE CONTENT 13
5.3 PARTICLE SIZE 14
5.4 HYGROSCOPICITY 14
5.5 BULK VALUE (APPARENT DENSITY) 14
5.6 PACKED DENSITY 14
5.7 CAKING AND LUMPING 15
5.8 PACKED POWDER DISCHARGE 15
5.9 COMPOSITION 16
5.10 LOW TEMPERATURE CHARACTERISTICS 20
5.11 DIELECTRIC TEST 20
5.12 FOAM COMPATIBILITY 21
6 MARKING 21
7 PACKAGING 22
8 TABLES 22
9 FIGURES 23

APPENDIX A (INFORMATIVE)

A1 RECOMMENDED INSPECTION PROCEDURES 48
A1.1 SAMPLING 48
A1.2 CLASSIFICATION OF TESTS 48
A1.3 REJECTION AND RETEST 49

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

No Text on This Page

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

ULC STANDARDS COMMITTEE ON PORTABLE FIRE EXTINGUISHERS

NAME	AFFILIATION	REGION	CATEGORY
Diane Haithcock (Chair)	Underwriters Laboratories Inc	USA	Non-Voting
L. Bourgeois	TriTop Inc.	Quebec	General Interest
G. Faber	SCM Risk Management Services	Canada	General Interest
G. Ferris	Protection R.T. Inc.	Quebec	Producer
N. Khan	SCM-RMS Technical Services	Canada	General Interest
B. Levitt	Levitt-Safety Limited	Canada	User
N. Murray	Consumers' Association of Canada	Canada	User
A. Rees	Department of National Defence	Canada	User
G. Schultz	City of Toronto Fire Department	Ontario	Regulator
I. Shearer	Strike First Corporation	Canada	Producer
D. Tiller	Office of the Fire Marshal & Emergency Management	Canada	Regulator
G. Vestergom, Jr.	Unifoam Company Limited	Canada	Producer
B. Shugarman	UL LLC	USA	Testing & Standards
N. Weeks (Project Manager)	Underwriters Laboratories Inc.	USA	Non-Voting

This list represents the membership at the time the Committee balloted on the final text of this edition. Since that time, changes in the membership may have occurred.

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

No Text on This Page

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

PREFACE

This is the Third Edition of the Standard for Dry Chemical for Use in Hand and Wheeled Fire Extinguishers, CAN/ULC-S514.

This Edition of the Standard has been formally approved by the ULC Standards Committee on Portable Fire Extinguishers

This Standard has been developed in compliance with the requirements of Standards Council of Canada (SCC) for accreditation of a Standards Development Organization.

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.

Appendix A, identified as informative, is for informational purposes only.

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.

This Third Edition National Standard of Canada is based on, and now supersedes, the Second Edition.

Attention is drawn to the possibility that some of the elements of this Canadian standard may be the subject of patent rights. ULC Standards shall not be held responsible for identifying any or all such patent rights.

Requests for interpretation of this Standard should be sent to ULC Standards. The requests should be worded in such a manner as to permit a “yes” or “no” answer based on the literal text of the requirement concerned.

This CAN/ULC-S514 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com/canada.

This Standard is intended to be used for conformity assessment.

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

No Text on This Page

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL

1 SCOPE

1.1 These requirements cover chemical, physical and performance properties of dry chemical fire extinguishing agents for use in portable fire extinguishing equipment being evaluated to CAN/ULC-S504, Standard for Dry Chemical Fire Extinguishers.

1.2 These requirements are also intended for the evaluation of recharge dry chemical fire extinguishing agents for use in extinguishers meeting the requirements of CAN/ULC-S504, provided the performance of the combination of the extinguisher and recharge agent, including performance during fire tests, can be shown to be equivalent to that of the original extinguisher.

NOTE: Reference to each applicable Test Method for a requirement is indicated by the letters TM and the appropriate Clause or Section number in parentheses in the right hand margin.

2 REFERENCE PUBLICATIONS

The documents shown below are referenced in the text of this Standard. Unless otherwise stated elsewhere in this Standard such reference shall be considered to indicate the edition and/or revisions of the document available at the date on which the Committee approved this ULC Standard.

Documents Published by the American Society for Testing and Materials (ASTM)
100 Barr Harbour Drive, PO Box C700, West Conshohocken, PA 19428-2959 U.S.A.
Telephone: (610) 832-9585
www.astm.org

• ASTM D5-13, Standard Test Method for Penetration of Bituminous Materials

• ASTM D877-13, Standard Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes

• ASTM D1193-06 (R2011), Standard Specification for Reagent Water

---

Documents Published by the National Fire Protection Association (NFPA)
1 Batterymarch Park, Quincy, MA 02169-7471 U.S.A.
Telephone: (617) 770-3000
www.nfpa.org

• NFPA HAZ10-2010, Fire Protection Guide to Hazardous Materials

• NFPA 11-2010, Standard for Low-, Medium-, and High-Expansion Foam

---

Document Published by Underwriters Laboratories of Canada (ULC)
7 Underwriters Road, Toronto, ON M1R 3B4 Canada
Telephone: (416) 757-3611 or 1-866-9373-ULC
www.ulc.ca

• CAN/ULC-S560-06, Standard for Category 3 Aqueous Film-Forming Foam (AFFF) Liquid Concentrates

• CAN/ULC-563-06, Standard for Category 3 Film-Forming Fluoroprotein (FFFP) Foam Liquid Concentrates

UL COPYRIGHTED MATERIAL
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL