NEMA Standards Publication

ANSI C18.3M, Part 1-2019

American National Standard for Portable Lithium Primary Cells and Batteries - General and Specifications

National Electrical Manufacturers Association

National Electrical Manufacturers Association
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C18.3M, Part 1-2019
Revision of
ANSI C18.3M, Part 1-2013

American National Standard for Portable Lithium Primary Cells and Batteries—General and Specifications

Secretariat:

National Electrical Manufacturers Association

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American National Standards Institute

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Foreword
(This foreword is not part of American National Standard C18.3M, Part 1-2019.)

This edition of an American National Standard for Portable Lithium Primary Cells and Batteries is based in part on the previous American National Standard for Lithium Primary Cells and Batteries—General and Specifications, ANSI C18.3M, Part 1-2013, and recognizes the work of the International Electrotechnical Commission (refer to IEC Publications 60086-1 and 60086-2) in establishing world-wide Standard requirements for portable lithium primary batteries. As with the previous edition, this edition includes the following chemistries:

Lithium/carbon monofluoride;
Lithium/manganese dioxide;
Lithium/iron disulfide.

Changes in this edition include the deletion of specification sheet number 5048 and maintenance of tests, loads, and minimum average duration values for the remaining specifications.

In April 1996, the then ANSI Accredited Standards Committee C18 on Specifications for Dry Cells and Batteries established a new general format for the publication of its Standards, dividing this Standard into two parts. Part 1 of this American National Standard for Portable Lithium Primary Cells and Batteries contains two basic sections. The first section has general requirements and information, such as the scope, applicable definitions, general descriptions of battery dimensions, terminal requirements, marking requirements, general design conditions, test conditions, etc. Section 2 of Part 1 is comprised of specification sheets for various types of cells and batteries. Part 2 of the Standard, a separate document, contains safety requirements. ANSI C18.4, also another separate Standard, contains environmental requirements.

Suggestions for the improvement of this Standard are welcome. They should be sent to the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 900, Rosslyn, VA 22209, Attention: Secretary ANSI ASC C18.

This Standard was processed and approved for submittal to ANSI by the American National Standards Committee C18 on Portable Cells and Batteries. Committee approval of this Standard does not necessarily imply that all committee Members voted for its approval. At the time Committee C18 approved this Standard, it had the following Members:

Steven Wicelinski , Chair
Marcus Boolish, Vice-Chair
Khaled Masri, Secretary

Organization Represented:	Name of Representative(s):		Voting Status:
Batteries Plus Bulbs	Heather	Peterson	Voting
	Jason	Fladhammer	Alt. Voting
Bureau Veritas Consumer Product Services	David	Grandin	Voting
Consumer Product Integrity Consulting, LLC	Robert	Coughlin	Voting
Duracell Inc.	Steven	Wicelinski	Voting
	Christopher	Brown	Alt. Voting
Energizer Brands, LLC	Marcus	Boolish	Voting
	Carin	Stuart	Alt. Voting
Fisher-Price	Douglas	Golde	Voting
Intertek	Thomas	O'Hara	Voting
	Rich	Byczek	Alt. Voting
Kimberly-Clark Corporation	Cary	Costello	Voting
Micropower Battery Co.	Jeff	Becker	Voting

Panasonic Corporation of North America	Charles	Monahan	Voting
SGS	Rodney	Grimes	Voting
Spectrum Brands, Inc.	John	Hadley	Voting
	Andy	Roszkowski	Alt. Voting
UL LLC	Laurie	Florence	Voting
ZPower, LLC	Jeff	Ortega	Voting
	Tim	Powers	Alt. Voting

The Members of Subcommittee C18-3 for Portable Lithium Primary Cells and Batteries who contributed to the development of this Standard are:

Marcus K. Boolish, Chairperson
Steven Wicelinski, Vice-Chairperson
Khaled Masri, NEMA, Secretary

Jeff Becker	Micropower Battery Co.
Zekarias Bekele	CSA Group
Christopher Brown	Duracell, Inc.
Denis Carpenter	Spectrum Brands, Inc.
Cary Costello	Kimberly-Clark Corporation
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Charlies Monahan	Panasonic Corporation of North America
Thomas O'Hara	Intertek
Jeff Ortega	ZPower, LLC
Heather Peterson	Batteries Plus Bulbs
Tim Powers	ZPower, LLC
Andy Roszkowski	Spectrum Brands, Inc.
Carin Stuart	Energizer Brands, LLC
Kelly Tsudan	Google

1 General

Note: Part 1 does not include safety requirements. Safety requirements can be found in Part 2.

1.1 Scope and Purpose

1.1.1 Scope

This Standard applies to portable lithium primary cells and batteries. This edition includes the following electrochemical systems:

a. Lithium/carbon monofluoride;
b. Lithium/manganese dioxide, and
c. Lithium/iron disulfide.

1.1.2 Purpose

The purpose of this publication is to:

a. Ensure the electrical and physical interchangeability of products from different manufacturers;
b. Minimize proliferation of cell and battery types;
c. Define a Standard of performance and provide guidance for its assessment, and
d. Provide guidance to consumers, manufacturers, and designers.

This is achieved by specifying items such as nomenclature, dimensions, polarity, terminals, marking, test conditions, and procedures.

1.2 Normative References

The following Standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. Parties to agreements based on this American National Standard are encouraged to investigate the most recent editions of the Standards indicated below.

ANSI/ASME Y14.5, *Dimensioning and tolerancing*

ANSI C18.3M, Part 2 *Portable Lithium Primary Cells and Batteries—Safety Standard*

ANSI C18.4 *American National Standard for Portable Cells and Batteries—Environmental*

1.3 Definitions

1.3.1 anode: Electrode at which an electrochemical oxidation reaction occurs

1.3.2 application test: A test that simulates the actual use of a battery in a specific application.

1.3.3 battery: One or more cells, including case, terminals, and markings.