ANSI C18.1M, Part 1-2021
Revision of
ANSI C18.1M, Part 1-2015

American National Standard for Portable Primary Cells and Batteries with Aqueous Electrolyte—General and Specifications

Secretariat:

National Electrical Manufacturers Association

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American National Standards Institute, Inc.

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Foreword (This Foreword is not part of American National Standard C18.1M, Part 1-2021.)

This edition of the *American National Standard for Portable Primary Cells and Batteries with Aqueous Electrolyte* is based in part on the previous *American National Standard for Portable Primary Cells and Batteries with Aqueous Electrolyte—General and Specifications*, ANSI C18.1M, Part 1-2015, and recognizes the work of the International Electrotechnical Commission (refer to IEC Publications 60086-1 and 60086-2) in establishing worldwide standard requirements for portable primary batteries. As with the previous edition, this edition includes the following chemistries:

a. Carbon zinc (Leclanché and zinc chloride types)
b. Alkaline manganese dioxide
c. Silver oxide
d. Zinc air
e. Nickel oxyhydroxide

Previous editions of ANSI C18.1M, Part 1 included the terms HIF and LIF, which described specific time periods, i.e., on/off cycles, for load application in portable lighting tests. HIF was an acronym for “heavy industrial flashlight,” and LIF was an acronym for “light industrial flashlight.” Starting with the 2005 edition of C18.1M, Part 1, the HIF and LIF terms were removed and replaced with the actual duty cycle for each test. The term “4 minutes per 15 minutes, 8 hours per day” replaces HIF, and the term “4 minutes per hour, 8 hours per day” replaces LIF.

Modified specifications for this edition include the ANSI 13 (D), 14 (C), 15 (AA), 24 (AAA), 7003Z, and 7005Z (hearing aid) battery types. In addition, the 1179 battery has been deleted from this Standard.

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 Primary Cells and Batteries with Aqueous Electrolyte* 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 composed of specification sheets for various types of cells and batteries. **Part 2 of the Standard, a separate document, contains safety requirements. In 2012, the committee began work on developing guidance for the inclusion of environmental aspects in batteries. This resulted in the publication of the *American National Standard for Portable Cells and Batteries—Environmental*.**

Suggestions for improvement of this Standard are welcome. They should be sent to:

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This Standard was processed and approved for submittal to ANSI by the Accredited 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, Chairperson
Marcus Boolish, Vice Chairperson
Khaled Masri, Secretary

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First Name	Last Name	Organization	Voting Status	Interest Category
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Jason	Fladhammer	Batteries Plus Bulbs	Alt. Voting	Gen. Interest
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Steven	Wicelinski	Duracell, Inc.	Voting	Producer
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Carin	Stuart	Energizer Brands, LLC	Alt. Voting	Producer
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The Members of Subcommittee C18-1 for Portable Primary Cells and Batteries who contributed to the development of this Standard are as follows:

Steven Wicelinski, Chairperson
Carin Stuart, Vice Chairperson

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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 primary cells and batteries with aqueous electrolyte and a zinc anode (non-lithium). This edition includes the following electrochemical systems:

a. Carbon zinc (Leclanché and zinc chloride types)
b. Alkaline manganese dioxide
c. Silver oxide
d. Zinc air
e. Nickel oxyhydroxide

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
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.

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