American National Standard for Portable Nickel Rechargeable Cells and Batteries—General and Specifications

Secretariat:

National Electrical Manufacturers Association
1300 N 17th St., Suite 900
Rosslyn, VA 22209

Approved: December 5, 2019

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Foreword

In 1912, a committee of the American Electrochemical Society recommended Standard methods to be used in testing dry cells. Their recommendations were followed five years later when the National Bureau of Standards prepared specifications that included cell sizes, the arrangement of cells within batteries, service tests, and required performance.

The need for continued revision to the specification led to the authorization by the American Engineering Standards committee of a permanent sectional committee on dry cells, now portable cells. This Committee, C18, representing battery users, manufacturers, and government agencies, has remained active since that time.

This Standard is a revision of ANSI C18.2M, Part 1-2013 American National Standard for Portable Rechargeable Cells and Batteries—General and Specifications. This current revision seeks to improve upon previous editions of this Standard by adding consumer product acceptance procedures such as clarification of rated capacity, cycle life, and application charge capacity. Harmonization with the other ANSI C18 Standards was implemented where applicable.

The basic philosophical approach used in developing this Standard was that of setting forth uniform test procedures that permit manufacturers’ self-declaration with regard to the performance levels of their products, or, in some cases, establishing minimum acceptable performance levels.

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 Rechargeable 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 requirements, 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.

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

NEMA Technical Operations Department
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. When Committee C18 approved this Standard, it had the following Members:

Steven Wicelinski, Chairperson
Marcus Boolish, Vice Chairperson
Khaled Masri, Secretary

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The Members of Subcommittee C18-2 on Portable Rechargeable Batteries who contributed to the development of this Standard are:

John L. Hadley, Chairperson  
Carin A. Stuart, Vice Chair  
Khaled Masri, Secretary

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1 General

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

1.1 Scope and Purpose

1.1.1 Scope

This publication applies to portable rechargeable or secondary cells and batteries¹ based on the following electrochemical systems:

a. Nickel-cadmium
b. Nickel-metal hydride
c. Nickel-zinc

Section 1 of this Standard contains general information and all standardized performance and mechanical tests upon which all the specifications in Section 2 are based.

Section 2 specification sheets list those tests and requirements described herein that are required for each battery. Not all tests in Section 1 are necessarily required on every specification sheet.

Part 2 of this Standard describes all safety tests and requirements.

¹ Unless otherwise noted, the word “battery” is used to refer to either cell or battery or both in the remainder of this document.