

ANSI/NEMA C18.2M, Part 1-2013

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# American National Standard for Portable Rechargeable Cells and Batteries - General and Specifications





**ANSI C18.2M, Part 1-2013**

**American National Standard**

**for Portable Rechargeable Cells and Batteries—**  
**General and Specifications**

Secretariat:

National Electrical Manufacturers Association  
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Rosslyn, VA 22209

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**American National Standards Institute, Inc.**

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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, 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 1-2007 *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:

**Senior Technical Director, Operations  
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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:

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Steven Wicelinski, Vice Chairperson  
Andrei Moldoveanu, Secretary

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*Name of Representative:*

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**Ramesh V. Shah, Chairman**

Michael H. Babiak, Vice Chairman  
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| James C. DeJager | Andrew Markow     |
| Laurie Florence  | Charles Monahan   |
| Douglas Golde    | Troy Renke        |
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| Kaniharu Iizuka | Battery Association of Japan |
| Koji Sekai      | Battery Association of Japan |

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**AMERICAN NATIONAL STANDARD**

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**ANSI C18.2M, PART 1-2013**

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## **Portable Rechargeable Cells and Batteries— General and Specifications**

### **1 General**

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

#### **1.1 Scope and objectives**

##### **1.1.1 Scope**

This publication applies to portable rechargeable, or secondary, cells and batteries<sup>1</sup> based on the following electrochemical systems:

- a) Nickel-cadmium
- b) Nickel-metal hydride
- c) Lithium-ion including lithium ion polymer

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.

##### **1.1.2 Purpose**

The purpose of this publication is:

- a) To ensure the electrical and physical interchangeability of products from different manufacturers;
- b) To minimize proliferation of cell and battery types;
- c) To define standard performance tests and provide guidance for their assessment; and,
- d) To provide guidance to consumers, manufacturers, designers, and other end users.

This is achieved by specifying designations, dimensions, polarity, terminals, markings, test conditions, and procedures.

### **1.2 Normative references**

The following standards contain provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below.

ANSI C18.2M, Part 2-2006      *Portable Rechargeable Cells and Batteries—Safety Standard*

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