



ANSI/NEMA C18.1M Part 2-2003

For Portable Primary Cells and Batteries with Aqueous Electrolyte - Safety Standard



National Electrical Manufacturers Association
1300 North 17th Street, Suite 900 • Rosslyn, VA 22209
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ANSI C18.1M, Part 2-2003

American National Standard

for Portable Primary Cells and Batteries
with Aqueous Electrolyte—

Safety Standard

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ANSI C18.1M, Part 2-2003
Revision C
ANSI C18.1M, Part 2-1999

**American National Standard
For Portable Primary Cells and Batteries
With Aqueous Electrolyte—
Safety Standard**

Secretariat:

National Electrical Manufacturers Association

Approved October 28, 2003

American National Standards Institute

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Contents

		Page
	Foreword.....	v
1	Introduction	1
2	Scope	1
3	Normative references	1
4	Definitions	1
5	Requirements for safety	3
	5.1 Design	3
	5.1.1 General	3
	5.1.2 Battery case	3
	5.1.3 Venting	3
	5.1.4 Attitude (orientation)	4
	5.1.5 Multi-cell molded plastic battery enclosure	4
	5.2 Intended use requirements	4
	5.3 Reasonably foreseeable misuse requirements	4
	5.4 Design consideration requirements	4
	5.5 Quality assurance plan	4
6	Sampling for type approval	4
7	Testing and compliance (verification)	5
	7.1 General	5
	7.2 Pretest dimensions, voltage, and insulation resistance test requirements	6
	7.2.1 Dimensions	6
	7.2.2 Open circuit voltage	6
	7.2.3 Closed circuit voltage	6
	7.2.4 Insulation resistance test	6
	7.3 Intended use simulation	7
	7.3.1 Test A: Partial use	7
	7.3.2 Test B: Vibration	8
	7.3.3 Test C: Thermal shock	9
	7.3.4 Test D: Mechanical shock	10
	7.4 Reasonably foreseeable misuse tests	10
	7.4.1 Test E: Incorrect installation	11
	7.4.2 Test F: External short-circuit	12
	7.4.3 Test G: Free fall (user drop)	13
	7.4.4 Test H: Over-discharge	14

7.4.5	Test I: Crush	16
7.5	Design consideration tests.....	16
7.5.1	Test J: Thermal abuse.....	17
7.5.2	Test K: Mold stress	18
8	Information for safety	20
9	Instructions for use	20
10	Marking	21
10.1	General.....	21
10.2	Small size batteries	21

Tables

1	Sampling for type approval.....	5
2	Vibration test sequence	8
3	Shock pulse	10
4	Testing and requirements.....	19

Figures

1	Small cell or battery gauge (inner dimensions)	3
2	Circuit for incorrect installation test	11
3	Circuit for external short-circuit test.....	12
4	Circuit for over-discharge test	14
5	Positive contact, contact recessed between ribs.....	22
6	Positive contact, recessed aperture	23
7	Negative contact, contact is “U” shaped	23
8	Recommended physical arrangement of a battery compartment.....	25

Annexes

A	Guidance for device designers.....	22
B	Guidance for packaging, handling, and transportation.....	26
C	Bibliography	28

Foreword (This Foreword is not part of American National Standard C18.1M, Part 2-2003.)

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 (currently the National Institute of Standards and Testing) 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. This Committee, C18, representing battery users, manufacturers, and government agencies, has remained active since that time. Committee C18 prepared ANSI Standard C18.1M, Part 2-1999 upon which this document is based under the sponsorship of the National Electrical Manufacturers Association (NEMA).

ANSI Standard C18.1M, Part 2-1999 was created in parallel with the International Electrotechnical Commission (IEC) project to develop a product safety standard for primary batteries with aqueous electrolyte (IEC Publication 60086-5). This revision was undertaken to update the safety tests and keep them current with the best possible practices.

Suggestions for improvement of this standard will be welcome. They should be sent to the National Electrical Manufacturers Association, 1300 N. 17th Street, Suite 1847, Rosslyn, VA 22209.

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

Michael H. Babiak, Chairperson

James C. DeJager, Vice Chairperson

Carin Bernstiel, Secretary

Organization Represented:

Name of Representative:

BAE Systems

C. Richard Walk
Andrew J. Markow (Alt.)

Consultant

David Linden

Consultant, U.S. Navy

Albert Himy

Duracell

Steven P. Wicelinski
S. Keel Kelly (Alt.)

Eastman Kodak Company

James C. DeJager

Energizer

Michael H. Babiak
Marc K. Boolish (Alt.)

International Imaging Industry Association

James Peyton

Intertek Testing Services

Terence J. O'Beirne

Matsushita Electric Corporation of America (Panasonic)

Charles P. Monahan

MolTech Power Systems

Ramesh V. Shah

Rayovac Corp.

John Hadley
Michael Moore (Alt.)
Denis Carpenter (Alt.)

U.S. Navy, Crane Division, Naval Surface
Warfare Center

James Gucinski
John Inman (Alt.)

Wilson Greatbatch Limited

Paul W. Krehl

The members of Subcommittee C18.5 on Safety Standards who contributed to the development of this standard are:

Keel Kelly, Chairperson
Ramesh Shah, Vice Chairperson
Carin Bernstiel, Secretary

Michael Babiak
Marc Boolish
James DeJager
James Gucinski
John Hadley
John Inman
Paul Krehl
David Linden
Charles Monahan
Terence O'Beirne
Richard Walk
Steven Wicelinski

For Portable Primary Cells and Batteries with Aqueous Electrolyte— Safety Standard

1 Introduction

The concept of safety is closely related to safeguarding the integrity of people and property. This standard defines performance requirements for primary batteries with aqueous electrolyte to ensure their safe operation under normal use and reasonably foreseeable misuse.

Safety is a balance between freedom from risk of harm and other demands to be met by the product. There can be no absolute safety. Even at the highest level of safety, the product can only be relatively safe. In this respect, decision-making is based on risk evaluation and safety judgment.

As safety will pose different problems, it is impossible to provide a set of precise provisions and recommendations that will apply in every case. This may be particularly true for button type batteries. However, this standard, when followed on a judicious “use when applicable” basis, will provide reasonably consistent standards for safety.

2 Scope

This American National Standard specifies performance requirements for portable primary batteries with aqueous electrolyte and zinc anode (non-lithium) to ensure their safe operation under normal use and reasonably foreseeable misuse.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below.

ANSI C18.1M, Part 1-2001, *For Portable Primary Cells and Batteries with Aqueous Electrolyte—General and Specifications*

4 Definitions

For the purposes of this American National Standard, the following definitions apply.

4.1 battery: One or more cells, including case, terminals, and marking.

4.2 battery, button: Small round battery, where the overall height is less than the diameter.