



ANSI/NEMA C18.1M Part 2-2003

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



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ANSI C18.1M, Part 2-2003

American National Standard

for Portable Primary Cells and Batteries
with Aqueous Electrolyte—

Safety Standard



ANSI C18.1M, Part 2-2003

Revision of
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

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American National Standards Institute

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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:

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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.