



JOINT CANADA-UNITED STATES
NATIONAL STANDARD

ANSI/CAN/UL 1974:2023

STANDARD FOR SAFETY

Evaluation for Repurposing or Remanufacturing Batteries



SCC FOREWORD

National Standard of Canada

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UL Standard for Safety for Evaluation for Repurposing or Remanufacturing Batteries, ANSI/CAN/UL 1974

Second Edition, Dated November 10, 2023

Summary of Topics

The Second Edition of UL 1974 dated November 10, 2023 has been issued to reflect the latest ANSI and SCC approval dates, and to incorporate the proposals dated May 5, 2023 and September 15, 2023.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated May 5, 2023 and September 15, 2023.

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ANSI/UL 1974-2023

NOVEMBER 10, 2023



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ANSI/CAN/UL 1974:2023

Standard for Evaluation for Repurposing or Remanufacturing Batteries

First Edition – October, 2018

Second Edition

November 10, 2023

This ANSI/CAN/UL Safety Standard consists of the Second Edition.

The most recent designation of ANSI/UL 1974 as an American National Standard (ANSI) occurred on November 10, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This Standard has been designated as a National Standard of Canada (NSC) on November 10, 2023.

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Preface

This is the Second Edition of ANSI/CAN/UL 1974, Standard for Evaluation for Repurposing or Remanufacturing Batteries.

UL is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL 1974 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Comments or proposals for revisions on any part of the Standard may be submitted to ULSE at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

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This Edition of the Standard has been formally approved by the Technical Committee (TC) on Repurposing or Remanufacturing Batteries, TC 1974.

This list represents the TC 1974 membership when the final text in this Standard was balloted. Since that time, changes in the membership may have occurred.

TC 1974 Membership

Name	Representing	Interest Category	Region
Barrett, Jim	ENEL-X	Producer	USA
Byczek, Rich	Intertek	Testing and Stds Org	USA
Caporal, Sophie	BMW Group	Supply Chain	Germany
Chen, Xinwei	Strides Frontier	Supply Chain	Singapore
Chu, Kuo-Chuan	Energy Moana Technology Co. Ltd.	Producer	Taiwan
Chung, Steven	ReJoule, Inc.	Supply Chain	USA
Coy, Todd	KBI	Producer	USA
Ding, Yi	US Army	Government	USA
Funde, Adinath	Savitribai Phule Pune University	General Interest	India
Harada, Yoshinori	4R Energy Corp	Producer	Japan
Holmdahl, Bryan	Amazon	Commercial / Industrial User	USA

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TC 1974 Membership Continued

Name	Representing	Interest Category	Region
Jordan, Diana Pappas	UL Standards & Engagement	TC Chair – Non-voting	USA
Le, Rebecca	UL Solutions	Testing and Stds Org	USA
Leber, Jody	CSA Group	Testing and Stds Org	Ontario, Canada
Lei, Bo	Electric Power Research Institute, China Southern Power Grid	General Interest	China
Lei, Qikai	CSG Power Generation Company	Commercial / Industrial User	China
Litke, Adam	Tennant Company	Commercial / Industrial User	USA
McKean, Colin	Canadian Battery Association	General Interest	Ontario, Canada
Mitchell, Paul	Energy Systems Network	General Interest	USA
Moh, Lionel	Genplus Pte Ltd	Producer	Singapore
Nowikowski, Joseph	Rimkus Consulting Group	General Interest	USA
Nusbaum, Howard	NSVRP - National Salvage Vehicle Reporting Program	AHJ	USA
Paiss, Matthew	Pacific Northwest National Laboratory	Government	USA
Phillips, Reginald	Vehicle Road Safety Solutions (VRSS)	Testing and Stds Org	Ontario, Canada
Pomerleau, Guy	Blue Solutions Canada Inc.	Producer	Quebec, Canada
Procopio, Joseph	Panasonic Corporation of North America	Producer	USA
Richard, Robert	Hazmat Safety Consulting LLC	General Interest	USA
Rogers, James	Town of Oak Bluffs	AHJ	USA
Savage, Michael	Marion County, FL	AHJ	USA
Soares, Gabriel	Moment Energy	Producer	British Columbia, Canada
Sudler III, Samuel	SEA LTD	General Interest	USA
Swan, Lukas	Dalhousie University	General Interest	Nova Scotia, Canada
Szymczyk, Rick	eCamion	Producer	Ontario, Canada
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Tong, Antonio	University of California San Diego	General Interest	USA
Tsen, Maoee	Pheonix Battery Corp	Producer	Taiwan
VanHeirseeele, Megan	UL Standards & Engagement	TC Project Manager – Non- voting	USA
Virupaksha, Darshan	Nunam Technologies Pvt Ltd	Producer	India
Wages Jr., Joseph	International Association of Electrical Inspectors	AHJ	USA
Warner, Nicholas	Energy Storage Response Group	General Interest	USA
Woo, Minje	LG Energy Solution	Producer	Korea
Yan, Xiao	Volta Institute of Digital Battery Energy Storage	General Interest	China
Yoo, Yeong	National Research Council of Canada	Government	Ontario, Canada
Yun, Zheng	Zhangjiagang Tsingyan Testing Technology Co., Ltd	Testing and Stds Org.	China

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This Standard is intended to be used for conformity assessment.

The intended primary application of this Standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET
ANGLAISE

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INTRODUCTION

1 Scope

1.1 This Standard covers the sorting and grading process of battery packs, modules and cells and electrochemical capacitors that were originally configured and used for other purposes, such as electric vehicle propulsion, and that are intended for a repurposed use application, such as for use in energy storage systems and other applications for battery packs, modules, cells and electrochemical capacitors.

1.2 This Standard also covers application specific requirements for repurposed battery packs/systems and battery packs/systems utilizing repurposed modules, cells and other components.

1.3 This Standard also covers the sorting and grading process for remanufactured, reconditioned or rebuilt batteries that may have not been previously evaluated to a safety standard, such as electric vehicle (EV) batteries remanufactured by the OEM intended for use in the same EV application or a similar EV application.

1.4 This Standard does not cover the aftermarket repair or replacement of OEM batteries by an entity other than the OEM or by an agent designated by an OEM.

2 Components

2.1 A component of a product covered by this Standard shall:

- a) Comply with the requirements for that component as specified in this Standard;
- b) Be used in accordance with its rating(s) established for the intended conditions of use; and
- c) Be used within its established use limitations or conditions of acceptability.

NOTE: Section 4 includes CSA, UL, and ULC components standards that may be used in the products covered by this Standard.

2.2 A component of a product by this Standard is not required to comply with a specific component requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product;
- b) Is superseded by a requirement in this Standard; or
- c) Is separately investigated when forming part of another component, provided the component is used within its established ratings and limitations.

2.3 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.4 A component that is also intended to perform other functions such as overcurrent protection, ground-fault circuit-interruption, surge suppression, any other similar functions, or any combination thereof, shall comply additionally with the requirements of the applicable standard(s) that cover devices that provide those functions.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Referenced Publications

4.1 Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

4.2 The following standards are referenced in this Standard, and portions of these referenced standards may be essential for compliance with this Standard. It is intended that the application and use of repurposed or remanufactured batteries covered by this Standard in an end product shall conform to the applicable installation codes and standards as appropriate for the country or countries where the repurposed or remanufactured battery is to be used.

CSA C22.2 No. 62133-1, *Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made from Them, for Use in Portable Applications – Part 1: Nickel Systems*

CSA C22.2 No. 62133-2, *Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made from Them, for Use in Portable Applications – Part 2: Lithium Systems*

IEC 61982-4, *Secondary Batteries (Except Lithium) for the Propulsion of Electric Road Vehicles – Part 4: Safety Requirements of Nickel-Metal Hydride Cells and Modules*

IEC 62281, *Safety of primary and secondary lithium cells and batteries during transport*

IEC 62619, *Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Safety Requirements for Secondary Lithium Cells and Batteries, for Use in Industrial Applications*

IEC 62660-3, *Secondary Lithium-Ion Cells for the Propulsion of Electric Road Vehicles – Part 3: Safety Requirements*

IEEE 1625, *Rechargeable Batteries for Multi-Cell Mobile Computing Devices*

IEEE 1725, *Rechargeable Batteries for Mobile Phones*

SAE J2464, *Electric and Hybrid Electric Vehicle Rechargeable Energy Storage System (RESS) Safety and Abuse Testing*

SAE J2950, *Recommended Practices for Shipping Transport and Handling of Automotive-Type Battery System – Lithium Ion*

UL 810A, *Electrochemical Capacitors*

UL 1642, *Lithium Batteries*

UL 1973, *Batteries for Use in Stationary and Motive Auxiliary Power Applications*

UL 2054, *Household and Commercial Batteries*