

PRE-RELEASE VERSION (FDIS)

General guidance on reuse and repurposing of secondary cells and batteries

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.220.20; 29.220.30; 29.220.99

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21A/885/FDIS

FINAL DRAFT INTERNATIONAL STANDARD (FDIS)

PROJECT NUMBER:

IEC 63338 ED1

DATE OF CIRCULATION:

2024-04-19

CLOSING DATE FOR VOTING:

2024-05-31

SUPERSEDES DOCUMENTS:

21A/831/CDV, 21A/851A/RVC

IEC SC 21A : SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES	
SECRETARIAT: France	SECRETARY: Mr Jean-Marie Bodet
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 21, TC 120	HORIZONTAL STANDARD: <input type="checkbox"/>
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Final Draft International Standard (FDIS) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

General guidance on reuse and repurposing of secondary cells and batteries

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

The move to FDIS has been approved during the SC21A Fall Meeting after review of comments (21A/851/RVC) on October 24th, 2023. The FDIS includes in its introduction the addition of a table informing about the existence of four related reuse standards developed in IEC as recommended by IEC TC 21, SC 21A and TC 120 officers.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

GENERAL GUIDANCE ON REUSE AND REPURPOSING OF SECONDARY CELLS AND BATTERIES

FOREWORD

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IEC 63338 has been prepared by subcommittee 21A: Secondary cells and batteries containing alkaline or other non-acid electrolytes, of IEC technical committee 21: Secondary cells and batteries. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
21A/XX/FDIS	21A/XX/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Based on the principles of life cycle thinking (LCT) and environmentally conscious design (ECD), secondary battery reuse and repurposing are a means to reduce raw material consumption. However, there are potential safety risks to consider before reusing or repurposing a battery. These should be thoroughly addressed before considering any kind of reuse or repurposing operations. Further, it is essential that all reused or repurposed batteries or sub-units of batteries comply with all safety, transport and product testing at the same level as new battery products (except tests requiring destructive sampling).

The primary purpose of this document is to provide basic guidance on the environmental aspects of reuse and repurposing of relevant cells and batteries; basic guidance on safety risks for the reuse and repurposing of relevant cells and batteries; basic guidance on original manufacturer warning notice on the applicability of a product for reuse or repurposing; and useful information regarding reuse and repurposing and relevant cell and battery regulations and standards to interested parties.

Additionally, various regions and countries are currently developing requirements and regulations for the reuse and repurposing of secondary cells and batteries, especially those used for the propulsion of electric road vehicles, after being extracted at their end of life. These differing requirements and regulations could lead to technical or safety issues in the use of these batteries. Thus, this document can assist nations and regions in setting up secondary battery reuse and repurposing regulations.

The expected users of this document are the following: original manufacturers (including cell and battery or application), qualified reuse and repurposed application manufacturers (e.g. with approval in writing from the original manufacturer to reuse or repurpose); national, regional, and local authorities that establish secondary battery reuse and repurposing regulations; and national, regional, and local authorities that revise secondary battery reuse and repurposing regulations.

However, other stakeholders are not precluded from using this document.

National and regional standards and voluntary stewardship programs are given priority over the matters covered in this document.

Table 1 contains an overview of different standards on reuse and repurposing of batteries and Battery Energy Storage Systems (BESS) developed by IEC/TC 21 Secondary cells and batteries and IEC/TC 120 Electrical Energy Storage (EES) systems. The purpose of Table 1 is to inform users of these standards about the existence of the other standards listed in the table and give a concise overview of the outline of those standards. It also identifies areas of possible overlap and informs users in these cases which of the standards takes precedence.

Table 1 – Standards on reuse and repurposing of batteries and battery energy storage systems (BESS)

		IEC 63338		IEC 63330-1		IEC 62933-4-4		IEC 62933-5-3	
Title		General guidance on reuse and repurposing of secondary cells and batteries		Repurposing of secondary batteries – Part 1: General requirements		Electrical energy storage (EES) systems – Part 4-4: Environmental requirements for battery-based energy storage systems (BESS) with reused batteries		Electrical energy storage (EES) systems – Part 5-3: Safety requirements for grid-integrated EES systems – Performing unplanned modification of electrochemical based system	
Scope		Secondary lithium ion and Ni-MH		Repurposing of secondary batteries and systems (excluding redox flow/Ni-MH/Pb batteries)		BESS using reused batteries		Energy storage systems	
		Battery	System	Battery	System	Battery	System	Battery	System
Requirements	General			No overlap: Clause 4 Clause 5 Clause 6					
	Environment					Support: Annex A (info)	No overlap: Clause 4 Clause 5 Clause 6 Clause 7 Annex B (info)		
	Safety			Priority: Clause 4 Clause 5 Clause 6	Support: Clause 6 (ESS) No overlap: Clause 6 (other)			Support: Annex A (Info)	No overlap: Clause 5 Clause 6 Clause 7 Clause 8 Priority: Clause 9
	Assessment			Priority: Clause 5	Support: Clause 6 (ESS) No overlap: Clause 6 (other)				

		IEC 63338		IEC 63330-1		IEC 62933-4-4		IEC 62933-5-3	
Guidance	General	No overlap: Clause 4							
	Environment	No overlap: Clause 9							
	Safety	Priority: Clause 5 Clause 6 No overlap: Clause 7 Clause 8							

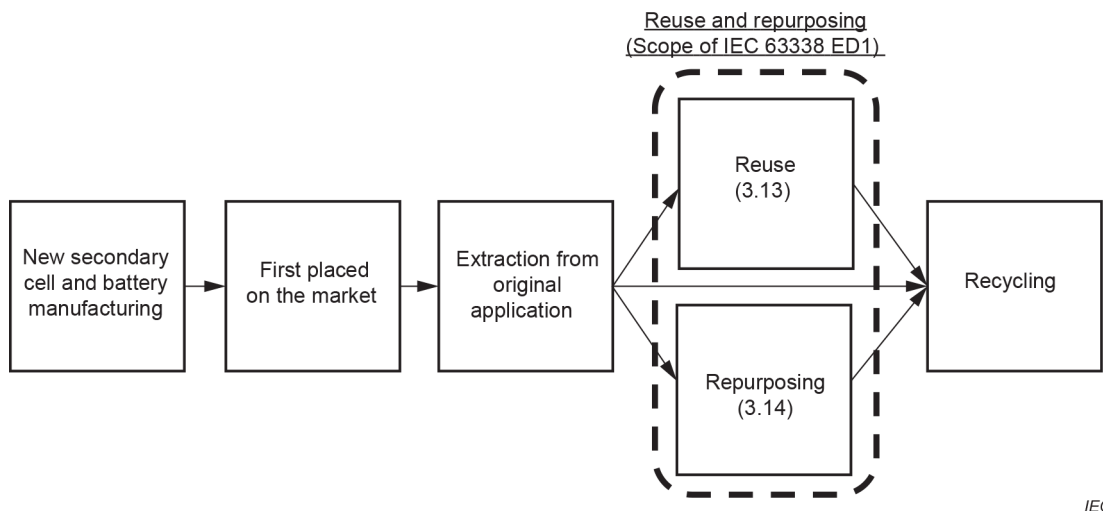
GENERAL GUIDANCE ON REUSE AND REPURPOSING OF SECONDARY CELLS AND BATTERIES

1 Scope

This document applies to the reuse and repurposing of secondary lithium ion and nickel-metal hydride cells and batteries after extraction from the application for which they were first placed on the market (hereafter "relevant cells and batteries").

This document does not permit reuse or repurposing of single cells or cell assemblies if battery lifetime traceability data are not recorded. See Clause 4. Swappable batteries such as those used in e-scooters are removed and installed by the user (such as for charging) without conducting a safety assessment (such as battery lifetime traceability data assessment) as part of intended use, which is not considered reuse or repurposing. This document does not cover system component reuse and repurposing. The original manufacturer can be contacted to confirm suitability of components for reuse and repurposing.

Figure 1 illustrates the scope of this document in the product life stage.



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Figure 1 – Scope of this document

2 Normative references

There are no normative references in this document.