SLOVENSKI STANDARD
oSIST prEN IEC 63369-1:2024

01-marec-2024

Metodologija vrednotenja ogljičnega odtisa za industrijske litij-ionske baterije

Methodology for the carbon footprint calculation applicable to industrial lithium-ion batteries

Méthodologie pour le calcul de l'empreinte carbone applicable aux batteries lithium-ion industrielles

Ta slovenski standard je istoveten z: **prEN IEC 63369-1:2023**

ICS:

13.020.60	Življenjski ciklusi izdelkov	Product life-cycles
29.220.01	Galvanski členi in baterije na splošno	Galvanic cells and batteries in general

oSIST prEN IEC 63369-1:2024 **en**

21A/867/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 63369-1 ED1**	
DATE OF CIRCULATION: **2023-12-22**	CLOSING DATE FOR VOTING: **2024-03-15**
SUPERSEDES DOCUMENTS: **21A/805/CD, 21A/818A/CC**	

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	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☒ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT 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 Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Methodology for the Carbon Footprint calculation applicable to industrial Lithium-ion batteries

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

During SC21A / WG6 Fall Meeting on October 24th, 2023, the answers of the IEC63369 project team to the comments have been presented to the WG6 experts and approved by the Secretary. The Revised Comments have been

distributed to the Participating National Committees on October 27th, 2023 (21A/818A/CC). During the SC21A/WG6 Fall Meeting it has also been agreed to move from CD to the CDV.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CARBON FOOTPRINT CALCULATION APPLICABLE TO INDUSTRIAL LITHIUM-ION BATTERIES
Part 1: General requirements and methodology

FOREWORD

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IEC 63369 has been prepared by subcommittee SC21A/WG6, of IEC technical committee SC21A. It is an International Standard.

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

Draft	Report on voting
XX/XX/FDIS	XX/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

158 www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described
159 in greater detail at http://www.iec.ch/standardsdev/publications.

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

163 • reconfirmed,
164 • withdrawn,
165 • replaced by a revised edition, or
166 • amended.
167

INTRODUCTION

This document was prepared by the WG6 of the SC21A

CARBON FOOTPRINT CALCULATION APPLICABLE TO INDUSTRIAL LITHIUM-ION BATTERIES
Part 1: General requirements and methodology

1 Scope

This document is part of a series. The first part addresses general requirements and methodology whereas the second part addresses applications of the methodology.

This document provides a comprehensive methodology for the calculation of carbon footprint of industrial type Li-ion battery systems from cradle to grave.

Second life and/or usage that was not intended when the battery is put on the market is not taken into account.

This document along with the other parts of the standard does not pertain to Li-ion batteries of portable type or for use in electric road vehicles.

The definition of the parameters used for the calculation allows for an improved comparability of results for all rechargeable Li-ion chemistries. Classes of representative products are defined in this document to allow comparison inside each class.

This methodology, based on the data provided by the battery manufacturer, is mainly intended for use by the battery purchaser or the battery end-user in order to compare the carbon footprint to select between battery systems being considered for their use over their Reference Service Life (RSL).

The methodology can also be used for a variety of purposes such as for battery system development, eco-design and participation in voluntary or mandatory programs.

After cell manufacturing, and for the benefit of any downstream user, an intermediate collection of data such as the data for processes & material components, related to carbon footprint weight of the cell, can be performed by the cell manufacturer. Primary data are to be collected by cell/components manufacturers.This document with the other parts of the standard offers also general guidance for the specific application of ISO 14067 to such a calculation. The methodology in this document is based exclusively on attributional LCA.

The carbon footprint calculation of charging equipment and power conversion equipment is not covered in this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62619:2022 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 TS 62933-2-2:2022 Electrical energy storage (EES) systems - Part 2-2: Unit parameters and testing methods - Application and performance testing

IEC TS 62933-3-1:2018 Electrical energy storage (EES) systems 212 - Part 3-1: Planning and performance assessment of electrical energy storage systems - General specification

IEC 62973-1:2018 Railway applications - Rolling stock - Batteries for auxiliary power supply systems - Part 1: General requirements

IEC 60896-21:2004 Stationary lead-acid batteries - Part 21: Valve regulated types - Methods of test

ISO/IEC 17020:2012 Conformity assessment -- Requirements for the operation of various types of bodies performing inspection

ISO 15686-8:2008 Buildings and constructed assets — Service-life planning — Part 8: Reference service life and service-life estimation

ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/

at

- ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1

primary data
foreground data

company-specific data

quantified value of a process or an activity obtained from a direct measurement or a calculation based on direct measurements

[source : ISO 14 067 (2018) 3.1.6.1]

3.1.2

Site-specific data /??

Primary data obtained within the product system.

[source : ISO 14 067 (2018) 3.1.6.2]

Note 1 to entry: All site-specific data are primary data but not all primary data are site-specific data because they may be obtained from a different product system.

Note 2 to entry: In case the component is manufactured in several facilities, to determine the level of representativeness of the primary data collected, a statistical combination may be applied.

3.1.3

secondary data
background data

data which do not fulfil the requirements for primary data

Note 1 to entry: Secondary data can include data from databases and published literature, default emission factors from national inventories, calculated data, estimates or other representative data, validated by competent authorities.

Note 2 to entry: Secondary data can include data obtained from proxy processes or estimates not directly collected, measured, or estimated by the company, but sourced from a third party LCI database or other sources.

Note 1 to entry: data not originated from a specific process within the supply-chain of the company performing the carbon footprint study.

Note 2 to entry: Secondary data include industry average data (e.g., from published production data, government statistics, and industry associations), literature studies, engineering studies and patents, and may also be based on financial data, and contain other generic data.

Note 3 to entry: Primary data that go through a horizontal aggregation step are considered as secondary data.

Note 4 to entry: details on secondary data selection is provided in IEC63369- 2

[source : ISO 14 067 (2018) 3.1.6.3]

3.1.4

Battery manufacturer
Entity which is supplying the battery system(s) to meet the Reference Service Life of the application as expressed in the technical specifications from the user.

Note 1 to entry: The component manufacturer that does not know the sizing of the battery is NOT defined as the battery manufacturer in the case of this standard.

3.1.5

Battery system sizing
Activity that takes into account the final usage of the battery system and selects the most optimized solution including all its technical parameters.

Note 1 to entry: It includes for example efficiencies, life expectations, selection of sub-systems, safety, etc.

3.1.6

Component manufacturer
Entity which is supplying a component of the battery system.

Note 1 to entry: The component manufacturer does not perform the battery system sizing.

3.1.7

Functionality class
< of battery systems>

Grouping where the battery system presents similarities in their operation in service

Note 1 to entry: Battery systems in the same functionality class can be compared in terms of carbon footprint

3.1.8

Representative virtual product
Market weighted-average model of existing batteries in a given functionality class.

Note 1 to entry: There is one representative virtual products per functionality class except when the bill of materials is significantly different.

3.1.9

Battery System
Battery
<for Li-ion>

System which comprises one or more cells, modules or battery packs and has a battery management system intended to provide the Reference Service Life as stated by the user.

Note 1 to entry: The battery system can have multiple additional components eg thermal management. More than one battery system can constitute a larger battery system.

[SOURCE: IEC 62619:2022, 3.11, modified – “capable of controlling current in case of overcharge, overcurrent, overdischarge, and overheating” has been replaced by " intended to provide the Reference Service Life as stated by the user” and Note1 to entry deleted.]

3.1.10

Functional unit
quantified performance, as stated in the user specifications, of the service provided by an industrial battery system

[SOURCE: ISO 14040:2006, 3.20, modified , deleted “of a product system for use as a reference unit” and replaced by “as stated in the user specifications, of the service provided by an industrial battery system“ —]

3.1.11

Reference flow

Amount of product needed to fulfil the defined function, measured in kg of battery system per kWh of the total energy required (for repetitive cycling REP) or per kWh of the “back-up cycle” (for on demand usage OND) by the application over its Reference Service Life.