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INTERNATIONAL STANDARD



Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications

INTERNATIONAL
ELECTROTECHNICAL
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CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Parameter measurement tolerances	10
5 General safety considerations	10
5.1 General	10
5.2 Insulation and wiring	11
5.3 Venting	11
5.4 Temperature/voltage/current management	11
5.5 Terminal contacts of the battery pack and/or battery system	11
5.6 Assembly of cells, modules, or battery packs into battery systems	11
5.6.1 General	11
5.6.2 Battery system design	12
5.7 Operating region of lithium cells and battery systems for safe use	12
5.8 System lock (or system lock function)	12
5.9 Quality plan	12
6 Type test conditions	13
6.1 General	13
6.2 Test items	13
7 Specific requirements and tests	14
7.1 Charging procedures for test purposes	14
7.2 Reasonably foreseeable misuse	15
7.2.1 External short-circuit test (cell or cell block)	15
7.2.2 Impact test (cell or cell block)	15
7.2.3 Drop test (cell or cell block, and battery system)	16
7.2.4 Thermal abuse test (cell or cell block)	18
7.2.5 Overcharge test (cell or cell block)	19
7.2.6 Forced discharge test (cell or cell block)	19
7.3 Considerations for internal short-circuit – Design evaluation	20
7.3.1 General	20
7.3.2 Internal short-circuit test (cell)	20
7.3.3 Propagation test (battery system)	22
8 Battery system safety (considering functional safety)	23
8.1 General requirements	23
8.2 Battery management system (or battery management unit)	23
8.2.1 Requirements for the BMS	23
8.2.2 Overcharge control of voltage (battery system)	24
8.2.3 Overcharge control of current (battery system)	26
8.2.4 Overheating control (battery system)	27
9 EMC	27
10 Information for safety	27
11 Marking and designation	27
12 Packaging and transport	27

Annex A (normative) Operating region of cells for safe use.....	28
A.1 General.....	28
A.2 Charging conditions for safe use	28
A.3 Considerations on charging voltage.....	28
A.4 Considerations on temperature	29
A.5 High temperature range	29
A.6 Low temperature range	29
A.7 Discharging conditions for safe use	30
A.8 Example of operating region	30
Annex B (informative) Procedure of propagation test by laser irradiation (see 7.3.3).....	32
B.1 General.....	32
B.2 Test conditions	32
B.2.1 Cell test (preliminary test).....	32
B.2.2 Battery system test (main test).....	33
Annex C (informative) Procedure of propagation test by methods other than laser (see 7.3.3).....	35
C.1 General.....	35
C.2 Test conditions	35
C.3 Methods for initiating the thermal runaway.....	35
Annex D (informative) Packaging and transport.....	36
Bibliography.....	37
List of comments.....	39
Figure 1 – Configuration of the impact test.....	16
Figure 2 – Impact location	18
Figure 3 – Configuration for the shortest edge drop test	18
Figure 4 – Configuration for the corner drop test	18
Figure 5 – Jig for pressing	21
Figure 6 – Examples of BMS locations and battery system configurations	24
Figure 7 – Example of the circuit configuration for overcharge control of voltage	26
Figure A.1 – An example of operating region for charging of typical lithium ion cells.....	30
Figure A.2 – An example of operating region for discharging of typical lithium ion cells	31
Figure B.1 – Example of the test layout.....	33
Figure B.2 – Example of typical temperature trend of the cell.....	33
Table 1 – Sample size for type tests	14
Table 2 – Drop test method and condition	17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SECONDARY CELLS AND BATTERIES CONTAINING
ALKALINE OR OTHER NON-ACID ELECTROLYTES –
SAFETY REQUIREMENTS FOR SECONDARY LITHIUM CELLS
AND BATTERIES, FOR USE IN INDUSTRIAL APPLICATIONS****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This commented version (CMV) of the official standard IEC 62619:2022 edition 2.0 allows the user to identify the changes made to the previous IEC 62619:2017 edition 1.0. Furthermore, comments from IEC SC 21A experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 62619 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.

This second edition cancels and replaces the first edition published in 2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) new requirements for moving parts;
- b) addition of requirements for hazardous live parts;
- c) addition of requirements for battery system design;
- d) new requirements for system lock;
- e) new requirements for EMC;
- f) addition of procedure of propagation test by laser.

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

Draft	Report on voting
21A/785/FDIS	21A/787/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/standardsdev/publications.

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SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES – SAFETY REQUIREMENTS FOR SECONDARY LITHIUM CELLS AND BATTERIES, FOR USE IN INDUSTRIAL APPLICATIONS

1 Scope

This document specifies requirements and tests for the safe operation of secondary lithium cells and batteries used in industrial applications, including stationary applications.

When there exists an IEC International Standard specifying test conditions and requirements for cells used in special applications and which is in conflict with this document, the former takes precedence (e.g., IEC 62660 series on road vehicles).

The following are some examples of applications that utilize cells and batteries under the scope of this document:

- Stationary applications: telecom, uninterruptible power supplies (UPS), electrical energy storage system, utility switching, emergency power, and similar applications.
- Motive applications: forklift truck, golf cart, automated guided vehicle (AGV), railway vehicles, and marine vehicles, with the exception of road vehicles. **1**

Since this document covers batteries for various industrial applications, it includes those requirements which are common and minimum to the various applications.

Electrical safety is included only as a part of the risk analysis of Clause 8. In regard to details for addressing electrical safety, the end use application standard requirements ~~have~~ need to be considered.

This document applies to cells and batteries. If the battery is divided into smaller units, the smaller unit can be tested as the representative of the battery. The manufacturer clearly declares the tested unit. The manufacturer ~~may~~ can add functions, which are present in the final battery to the tested unit.

This document addresses first life cells and batteries. Reuse, repurpose, second life use or similar are not taken into consideration by this document. **2**

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 62133:2012, 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~~

IEC 62133-2:2017, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary lithium cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems

IEC 62620:2014, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for use in industrial applications*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications

Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Exigences de sécurité pour les accumulateurs au lithium pour utilisation dans des applications industrielles

CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Parameter measurement tolerances	10
5 General safety considerations	10
5.1 General.....	10
5.2 Insulation and wiring	11
5.3 Venting	11
5.4 Temperature/voltage/current management	11
5.5 Terminal contacts of the battery pack and/or battery system	11
5.6 Assembly of cells, modules, or battery packs into battery systems	11
5.6.1 General	11
5.6.2 Battery system design	12
5.7 Operating region of lithium cells and battery systems for safe use	12
5.8 System lock (or system lock function)	12
5.9 Quality plan	12
6 Type test conditions	12
6.1 General.....	12
6.2 Test items	13
7 Specific requirements and tests	14
7.1 Charging procedures for test purposes	14
7.2 Reasonably foreseeable misuse.....	15
7.2.1 External short-circuit test (cell or cell block).....	15
7.2.2 Impact test (cell or cell block)	15
7.2.3 Drop test (cell or cell block, and battery system).....	16
7.2.4 Thermal abuse test (cell or cell block).....	18
7.2.5 Overcharge test (cell or cell block).....	19
7.2.6 Forced discharge test (cell or cell block).....	19
7.3 Considerations for internal short-circuit – Design evaluation	20
7.3.1 General	20
7.3.2 Internal short-circuit test (cell)	20
7.3.3 Propagation test (battery system)	22
8 Battery system safety (considering functional safety).....	23
8.1 General requirements	23
8.2 Battery management system (or battery management unit)	23
8.2.1 Requirements for the BMS.....	23
8.2.2 Overcharge control of voltage (battery system).....	24
8.2.3 Overcharge control of current (battery system)	25
8.2.4 Overheating control (battery system)	26
9 EMC	26
10 Information for safety	26
11 Marking and designation.....	27
12 Packaging and transport.....	27
Annex A (normative) Operating region of cells for safe use	28

A.1	General.....	28
A.2	Charging conditions for safe use.....	28
A.3	Considerations on charging voltage	28
A.4	Considerations on temperature	29
A.5	High temperature range	29
A.6	Low temperature range	29
A.7	Discharging conditions for safe use.....	30
A.8	Example of operating region	30
Annex B	(informative) Procedure of propagation test by laser irradiation (see 7.3.3).....	32
B.1	General.....	32
B.2	Test conditions	32
B.2.1	Cell test (preliminary test).....	32
B.2.2	Battery system test (main test)	33
Annex C	(informative) Procedure of propagation test by methods other than laser (see 7.3.3).....	35
C.1	General.....	35
C.2	Test conditions	35
C.3	Methods for initiating the thermal runaway	35
Annex D	(informative) Packaging and transport	36
Bibliography		37
Figure 1	– Configuration of the impact test.....	16
Figure 2	– Impact location.....	18
Figure 3	– Configuration for the shortest edge drop test.....	18
Figure 4	– Configuration for the corner drop test.....	18
Figure 5	– Jig for pressing	21
Figure 6	– Examples of BMS locations and battery system configurations.....	24
Figure 7	– Example of the circuit configuration for overcharge control of voltage	25
Figure A.1	– An example of operating region for charging of typical lithium ion cells	30
Figure A.2	– An example of operating region for discharging of typical lithium ion cells.....	31
Figure B.1	– Example of the test layout.....	33
Figure B.2	– Example of typical temperature trend of the cell.....	33
Table 1	– Sample size for type tests	14
Table 2	– Drop test method and condition	17

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IEC 62620:2014, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for use in industrial applications*

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SOMMAIRE

AVANT-PROPOS	42
1 Domaine d'application	44
2 Références normatives	45
3 Termes et définitions	45
4 Tolérances de mesure relatives aux paramètres	48
5 Considérations générales de sécurité	49
5.1 Généralités	49
5.2 Isolement et câblage	49
5.3 Échappement de gaz	50
5.4 Gestion de la température, de la tension et du courant	50
5.5 Contacts des bornes du groupe batteries et/ou du système de batterie	50
5.6 Assemblage d'éléments, de modules ou de groupes batteries dans des systèmes de batteries	50
5.6.1 Généralités	50
5.6.2 Conception du système de batterie	51
5.7 Plage de fonctionnement des éléments et systèmes de batteries au lithium pour une utilisation en toute sécurité	51
5.8 Verrouillage système (ou fonction de verrouillage système)	51
5.9 Plan qualité	51
6 Conditions des essais de type	51
6.1 Généralités	51
6.2 Éléments soumis à l'essai	52
7 Exigences spécifiques et essais	53
7.1 Procédures de charge pour les besoins des essais	53
7.2 Mauvais usage raisonnablement prévisible	54
7.2.1 Essai de court-circuit externe (élément ou bloc d'éléments)	54
7.2.2 Essai de choc (élément ou bloc d'éléments)	54
7.2.3 Essai de chute (élément ou bloc d'éléments et système de batterie)	55
7.2.4 Essai de température abusive (élément ou bloc d'éléments)	57
7.2.5 Essai de surcharge (élément ou bloc d'éléments)	58
7.2.6 Essai de décharge forcée (élément ou bloc d'éléments)	58
7.3 Considérations relatives au court-circuit interne – Évaluation de conception	59
7.3.1 Généralités	59
7.3.2 Essai de court-circuit interne (élément)	59
7.3.3 Essai de propagation (système de batterie)	62
8 Sécurité du système de batterie (en tenant compte de la sécurité fonctionnelle)	62
8.1 Exigences générales	62
8.2 Système de gestion de batterie (ou unité de gestion de batterie)	63
8.2.1 Exigences pour le BMS	63
8.2.2 Contrôle de surcharge de tension (système de batterie)	64
8.2.3 Contrôle de surcharge du courant (système de batterie)	66
8.2.4 Contrôle de surchauffe (système de batterie)	66
9 CEM	66
10 Informations pour la sécurité	67
11 Marquage et désignation	67

12	Emballage et transport	67
Annexe A (normative) Plage de fonctionnement des éléments pour une utilisation en toute sécurité		
	A.1 Généralités	68
	A.2 Conditions de charge pour une utilisation en toute sécurité	68
	A.3 Considérations concernant la tension de charge	68
	A.4 Considérations relatives à la température	69
	A.5 Plage de températures élevées	69
	A.6 Plage de températures basses	69
	A.7 Conditions de décharge pour une utilisation en toute sécurité	70
	A.8 Exemple de plage de fonctionnement	70
Annexe B (informative) Procédure d'essai de propagation par irradiation par laser (voir 7.3.3)		
	B.1 Généralités	72
	B.2 Conditions d'essai	72
	B.2.1 Essai de l'élément (essai préliminaire)	72
	B.2.2 Essai de système de batterie (essai principal)	73
Annexe C (informative) Procédure d'essai de propagation par d'autres méthodes que le laser (voir 7.3.3)		
	C.1 Généralités	75
	C.2 Conditions d'essai	75
	C.3 Méthodes d'initiation de l'emballage thermique	75
Annexe D (informative) Emballage et transport		
Bibliographie		
	Figure 1 – Configuration de l'essai de choc	55
	Figure 2 – Point d'impact	57
	Figure 3 – Configuration pour l'essai de chute sur le bord le plus court	57
	Figure 4 – Configuration pour l'essai de chute sur le coin	57
	Figure 5 – Gabarit de serrage sous pression	61
	Figure 6 – Exemples d'emplacements du BMS et de configurations du système de batterie	64
	Figure 7 – Exemple de configuration de circuit pour le contrôle de surcharge de tension	65
	Figure A.1 – Exemple de plage de fonctionnement pour la charge des éléments types ion-lithium	70
	Figure A.2 – Exemple de plage de fonctionnement pour la décharge des éléments types ion-lithium	71
	Figure B.1 – Exemple de configuration d'essai	73
	Figure B.2 – Exemple d'amplitude de température type de l'élément	73
	Tableau 1 – Effectif d'échantillon pour les essais de type	53
	Tableau 2 – Méthode et condition de l'essai de chute	56

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

ACCUMULATEURS ALCALINS ET AUTRES ACCUMULATEURS À ÉLECTROLYTE NON ACIDE – EXIGENCES DE SÉCURITÉ POUR LES ACCUMULATEURS AU LITHIUM POUR UTILISATION DANS DES APPLICATIONS INDUSTRIELLES

AVANT-PROPOS

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La Norme internationale IEC 62619 a été établie par le sous-comité 21A: Accumulateurs alcalins et autres accumulateurs à électrolyte non acide, du comité d'études 21 de l'IEC: Accumulateurs. Il s'agit d'une Norme internationale.

Cette deuxième édition annule et remplace la première édition parue en 2017. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) de nouvelles exigences pour les pièces mobiles;
- b) l'ajout d'exigences pour les parties actives dangereuses;
- c) l'ajout d'exigences pour la conception du système de batterie;
- d) de nouvelles exigences relatives au verrouillage système;
- e) de nouvelles exigences relatives à la CEM;
- f) l'ajout de la procédure d'essai de propagation par laser.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
21A/785/FDIS	21A/787/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Le présent document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

Le comité a décidé que le contenu du présent document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

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ACCUMULATEURS ALCALINS ET AUTRES ACCUMULATEURS À ÉLECTROLYTE NON ACIDE – EXIGENCES DE SÉCURITÉ POUR LES ACCUMULATEURS AU LITHIUM POUR UTILISATION DANS DES APPLICATIONS INDUSTRIELLES

1 Domaine d'application

Le présent document spécifie les exigences et les essais pour le fonctionnement en toute sécurité des accumulateurs au lithium utilisés dans des applications industrielles, y compris les applications stationnaires.

Lorsqu'il existe une Norme internationale IEC qui spécifie des conditions d'essai et des exigences pour des éléments destinés à des applications particulières, et qui est en contradiction avec le présent document, la publication particulière est appliquée en priorité (par exemple, la série IEC 62660 sur les véhicules routiers).

Ci-après figurent des exemples d'applications qui emploient les éléments et les batteries inclus dans le domaine d'application du présent document :

- applications stationnaires: télécommunications, alimentation sans interruption (ASI), système de stockage d'énergie électrique, sélecteur de service, alimentation de secours et applications similaires;
- applications mobiles: chariot élévateur à fourche, voiturette de golf, véhicule à guidage automatique (AGV, automated guided vehicle), véhicules ferroviaires et marins, à l'exclusion des véhicules routiers.

Étant donné que le présent document couvre les batteries destinées à différentes applications industrielles, il inclut les exigences qui sont communes et minimales pour les différentes applications.

La sécurité électrique est incluse uniquement dans le cadre de l'analyse des risques de l'Article 8. Concernant les informations détaillées en matière de sécurité électrique, il est nécessaire de prendre en considération les exigences normalisées relatives à l'application finale.

Le présent document s'applique aux éléments et aux batteries. Si la batterie est divisée en unités plus petites, l'unité plus petite peut être soumise à l'essai pour représenter la batterie. Le fabricant déclare clairement l'unité soumise à l'essai. Il peut ajouter des fonctions, qui sont présentes dans la batterie finale, à l'unité soumise à l'essai.

Le présent document traite de la première vie des éléments et des batteries. La réutilisation, la réaffectation, l'utilisation dans le cadre d'une seconde vie ou d'autres utilisations similaires ne sont pas prises en considération dans le présent document.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 62133-2:2017, *Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Exigences de sécurité pour les accumulateurs portables étanches, et pour les batteries qui en sont constituées, destinés à l'utilisation dans des applications portables – Partie 2: Systèmes au lithium*

IEC 62620:2014, *Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Éléments et batteries d'accumulateurs au lithium pour utilisation dans les applications industrielles*

Guide ISO/IEC 51, *Aspects liés à la sécurité – Principes directeurs pour les inclure dans les normes*