CLC/TC 21X

Secondary cells and batteries

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3. Concluding remarks

1. CLC/TC 21X
Secondary cells and batteries

Scope:

To execute the following standardization activities for secondary cells and batteries – all applications and industries:

- to implement IEC/TC 21/SC 21A documents into CENELEC standards
- to prepare Product Standards, general requirements and methods of testing included
- to prepare Safety Standards and associated Codes of Practice
- to consider Environmental Requirements (EC Rules) for the products.

Mirror committee to IEC TC21 & SC21A

Officers:

Chairperson	Mr Jean Paul Douady (French NC, Exide)
Secretary	Dr Torsten Hildebrandt (German NC, Johnson Controls)

1. CLC/TC 21X
Secondary cells and batteries

- Four active working groups
- Experts from battery industry and car manufacturers
- Annual plenary meeting
- Strong cooperation with IEC TC21 / SC21A
- Many European experts are part of IEC working groups
- Majority of EN documents are realized in IEC working groups and taken over via parallel voting procedures to European level.

WG 01 - Safety requirements on batteries and battery installations

- Convenor: Mr Pierre Bourg (French NC)

WG 03 - Starter batteries EN 50342 - General requirements

- Convenor: Dr Torsten Hildebrandt (German NC)
- Main focus on lead acid starter batteries
- WG3 is part of the Cenelec eMWG

WG 05 - Li Batteries: General Requirements Group EN 50604

- Convenor Mr Richard Aumayer (German NC)
- Main focus on Li systems for Pedelecs

WG 06 - Secondary batteries for industrial applications, general requirements

- Convenor Mr Martin Sinz (German NC)

1. CLC/TC 21X
Secondary cells and batteries

European document family EN 62660 on electrical vehicles have been / are elaborated in the joint working group TC21 / SC21A / TC69 of IEC under the convenorship of Mr Yoshiaki Nitta (Japanese NC):

- EN 62660-1:2011 Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 1: Performance testing (update in preparation)
- EN 62660-2:2011 Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 2: Reliability and abuse testing (update in preparation)
- EN 62660-3:2016 Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 3: Safety requirements

1. CLC/TC 21X
Secondary cells and batteries

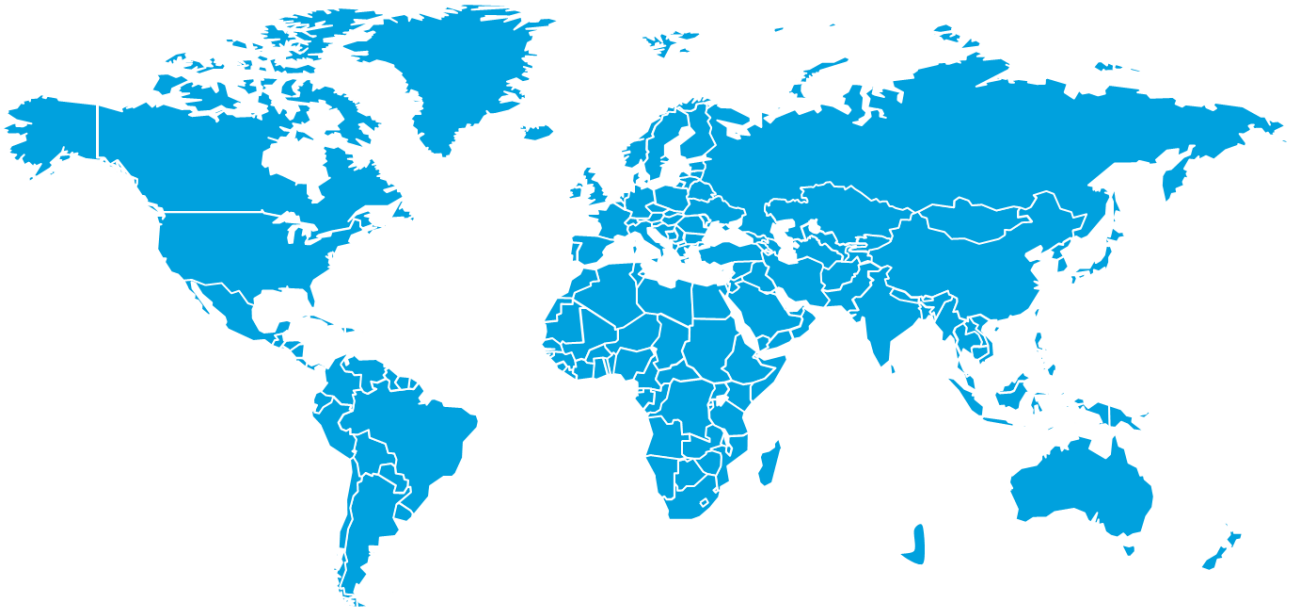
Main home grown European documents:

- EN 50342-1:2015 - Lead-acid starter batteries - Part 1: General requirements and methods of test
- EN 50342-2:2007 - Lead-acid starter batteries - Part 2: Dimensions of batteries and marking of terminals
- EN 50342-4:2009 - Lead-acid starter batteries - Part 4: Dimensions of batteries for heavy vehicles
- EN 50342-5:2010 - Lead-acid starter batteries - Part 5: Properties of battery housings and handles
- EN 50342-6:2015 - Lead-acid starter batteries - Part 6: Batteries for Micro-Cycle Applications
- EN 50342-7:2015 - Lead acid starter batteries - Part 7: General requirements and methods of tests for motorcycle batteries
- EN 50604-1:2016 - Secondary lithium batteries for light EV (electric vehicle) applications - Part 1: General safety requirements and test methods
- EN 61429:1996/A11:1998 - Marking of secondary cells and batteries with the international recycling symbol ISO 7000-1135 and indications regarding directives 93/86/EEC and 91/157/EEC

2. Overview of the work items at Worldwide level

A. Managed by the IEC TC 21 on Secondary Cells and Batteries

IEC TC 21 Chairman: Mr. Herbert Giess (Swiss NC)
IEC TC 21 Secretary: Mr. Yves Boudou (France NC)



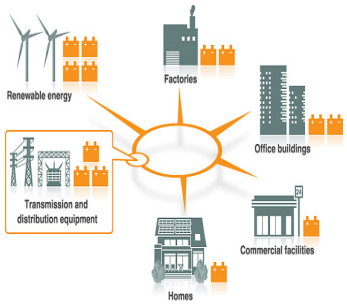
2. Overview of the work items at Worldwide level
A. Managed by the IEC TC 21 on Secondary Cells and Batteries

IEC 60095-1/-2/-4/-6/-7
Starter - Start & Stop Batteries

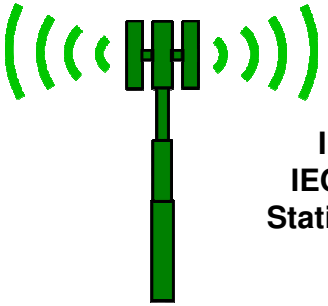
IEC 63193 (est. 2019)
Lightweight Electric
Vehicles

IEC 60254-1/-2
Traction Batteries

IEC TC21
Lead-Acid



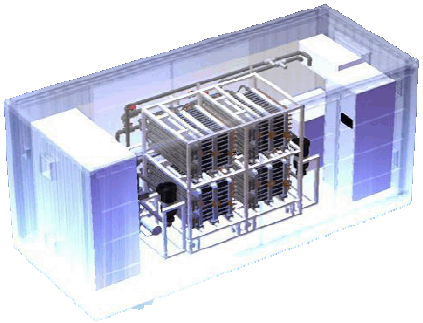
IEC 61427-2
Batteries for ON-Grid
applications



IEC 60896-11
IEC 60896-21/-22
Stationary Batteries

IEC 61427-1
Batteries for OFF-Grid
Photovoltaic applications

2. Overview of the work items at Worldwide level
A. Managed by the IEC TC 21 on Secondary Cells and Batteries



IEC 62932-2-1
Flow Battery System
Stationary Application
Performance

IEC 62984-3-1
High temperature
Na-based systems
Performance

IEC TC21
Others chemistries

IEC 62660-1
Lithium-Ion
in road vehicles
Performance

IEC 63118
Lithium-Ion
in road vehicles
Not for propulsion

2. Overview of the work items at Worldwide level
A. Managed by the IEC TC 21 on Secondary Cells and Batteries

IEC TR 62540
RFID Identification
of stationary
Lead-acid cells

IEC 62902
Marking symbols
Battery chemistry
identification

IEC 62485-1
Safety for Batteries and
installations

IEC 62485-2
Safety for Stationary Batteries

IEC 62932-2-1
Flow Battery System
Safety requirements

IEC 62485-3
Safety for Traction Batteries

IEC 62984-3-1
High temperature
Na-based system
Safety requirements

IEC TC21
Safety

IEC 62485-4
Safety for VRLA batteries in
Portable Appliances

IEC 62485-5
Safe operation
Lithium-Ion - Stationary

IEC 62485-6
Safe operation
Lithium-Ion - Traction

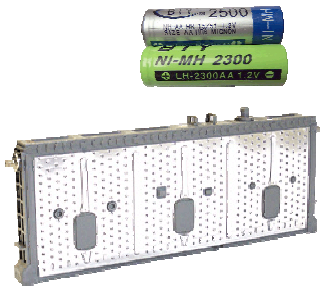
2. Overview of the work items at Worldwide level

B. Managed by the IEC SC21A

IEC SC21A Chairman: Mr. Steven P; Wicelinski (US)
IEC SC21A Secretary: Mr. Pierre M. Bourg (NC France)
IEC SC21A Assistant Secretary: Mr. Jean-Marie Bodet (NC France)

- IEC SC21A Safety concept
- IEC SC21A Safety Standards

2. Overview of the work items at Worldwide level
A. Managed by IEC SC21A for Secondary Alkaline/Non-acid Electrolyte Cells and Batteries



IEC 61951-2
IEC 62675
NiMH
Industrial and Portable applications

IEC 60623
IEC 60952-1/2/3
IEC 61951 IEC62259
NiCd Cells
Industrial and Portable applications

IEC SC21A
NiCd NiMH Li-ion

IEC 61960
Lithium-Ion
Portable applications
Performance

IEC 62620
Lithium-Ion
Industrial applications
Performance

IEC 60952-1/2/3
Aircraft
Batteries

2. Overview of the work items at Worldwide level
B. Managed by the IEC TC SC21A: The safety standards

Portable Rechargeable Alkaline and Lithium

IEC 62133-2 ED1 Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems.
Published on Feb 2017

IEC 62133-1 ED1 Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 1: Nickel systems.
Published on Feb 2017

Industrial Rechargeable Alkaline

IEC 61438 ED1 Possible safety and health hazards in the use of alkaline secondary cells and batteries - Guide to equipment manufacturers and users
Published on Nov 1996

IEC 63115-2 ED1 Sealed nickel-metal hydride cells and modules for use in industrial applications – Part 2: Safety
Published on Feb 2017

2. Overview of the work items at Worldwide level
B. Managed by the IEC TC SC21A: The safety standards

Industrial Rechargeable Lithium

IEC 63057 ED1 Safety requirements for secondary lithium cells and batteries for use in road vehicle not for the propulsion.
In progress (Committee Draft for Vote)

IEC 62619 ED1 Safety requirements for secondary lithium cells and batteries, for use in industrial applications.
Published on Feb 2017 – Revision ED2 in progress

IEC 63056 ED1 Safety requirements for secondary lithium cells and batteries for use in electrical energy storage system.
In progress (Committee Draft for Vote)

3. Concluding remarks

- Cenelec TC21X, the standardisation arm of Europe for Secondary Cells and Batteries of all Chemistries and for all Applications , is actively engaged in shaping the tests and requirements for electrochemical power sources

- The current TC21X activities center on batteries for e-mobility (start-stop, hybrid, pure EV and two-wheelers) with 6 active projects of the EN 50342 and EN 50604 series

- Cenelec TC21X is closely collaborating with IEC TC21 and SC21A so to integrate, via shared experts and common standardisation topics, world-wide know-how and experience in its standardization activity.

- Cenelec TC21X is using IEC TC21 and SC21A, via joint IEC working groups or official liaisons, as the bridge toward multiple other Technical Committees of IEC such as TC8 , TC9 , TC18, TC69, TC120 engaged in applications of secondary batteries for Power Grids, Trains, E-Mobility and Ships

- **Cenelec TC21X is ready to start discussions with the parties involved in order to evaluate the possibility to generate EN standards aimed at qualifing derated or end-of-life EV batteries, for a "second life" in decentralised energy storage systems**