

Safety requirements for secondary batteries and battery installations - Part 1: General safety information

This document is a preview generated by EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50272-1:2010 sisaldab Euroopa standardi EN 50272-1:2010 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 30.11.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 22.10.2010.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50272-1:2010 consists of the English text of the European standard EN 50272-1:2010.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 30.11.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 22.10.2010.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 13.260, 29.130.20

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: 605 5050; E-mail: info@evs.ee

**Safety requirements for secondary batteries and battery installations -
Part 1: General safety information**

Règles de sécurité pour les batteries et
les installations de batteries -
Partie 1: Information générale de sécurité

Sicherheitsanforderungen an Batterien
und Batterieanlagen -
Teil 1: Allgemeine
Sicherheitsinformationen

This European Standard was approved by CENELEC on 2010-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 21X, Secondary cells and batteries. It was submitted to the formal vote and was approved by CENELEC as EN 50272-1 on 2010-10-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2011-10-01
 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2013-10-01
-

This document is a preview generated by EVS

Contents

1	Scope	4
2	Normative references	4
3	Terms and definitions	5
4	General Information	7
	4.1 General.....	7
	4.2 Charge.....	7
	4.3 Discharge	9
	4.4 Superimposed AC current / ripple current.....	9
5	Protection against electric shock	10
6	Disconnection and separation	10
7	Commissioning and putting batteries into operation	10
	7.1 Delivery conditions of batteries	10
	7.2 Electrolyte and topping up water (for vented / flooded type cells only)	10
	7.3 Commissioning.....	10
8	Limit values and correction factors	10
	8.1 General.....	10
	8.2 Rated capacity and depth of discharge.....	11
	8.3 Charge current, charge voltage.....	11
	8.4 External short circuit.....	11
	8.5 Battery temperature	12
9	Provisions against explosion hazards	14
10	Provision against electrolyte hazards	14
11	Marking, labeling and instructions	14
12	Transport and storage	14
13	Disposal and environmental aspects	14
	Bibliography	16
	Figures	
	Figure 1 - Battery / cycle operation mode of a battery (charge / discharge)	8
	Figure 2 - Response (switch) mode operation.....	9
	Figure 3 - Parallel operation mode (incl. standby and buffer operation mode)	9
	Figure 4 - Freezing point curve of sulphuric acid	12
	Figure 5 - Freezing point curve of potassium hydroxide solution.....	13
	Tables	
	Table 1 - Galvanic secondary elements (rechargeable batteries).....	7
	Table 2 - Preferred fields of application of secondary battery design	7
	Table 3 - Permitted variation of single cell voltage during charging with constant voltage at 20 °C.....	11
	Table 4 - Operating temperatures	12
	Table 5 - Typical Temperature correction factor λ_U of the single cell charging voltage	13

1 Scope

This European Standard is Part 1 of EN 50272 under the generic title “*Safety requirements for secondary batteries and battery installations*” with nominal voltages up to DC 1 500 V (low voltage directive) and specifies the basic requirements referred to in the other parts of the standard as follows:

- Part 2 Stationary batteries
- Part 3 Traction batteries
- Part 4 Batteries for use in portable appliances

The requirements regarding safety, reliability, life expectancy, mechanical strength, cycle stability, internal resistance, and battery temperature, are determined by various applications, and this, in turn, determines the selection of the battery design and technology.

In general, the requirements and definitions are specified for lead-acid and nickel-cadmium batteries. For other battery systems, the requirements may be applied accordingly.

The standard covers safety aspects taking into account hazards associated with:

- electricity (installation, charging, discharging, etc.);
- electrolyte;
- inflammable gas mixtures;
- storage and transportation.

With respect to electrical safety, reference is made to EN 60364-4-41.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 50272-2	Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries
EN 50272-3	Safety requirements for secondary batteries and battery installations - Part 3: Traction batteries
EN 50272-4	Safety requirements for secondary batteries and battery installations - Part 4: Batteries for use in portable appliances
EN 60364-4-41	Electrical installations of buildings - Part 4: Protection for safety - Chapter 41: Protection against electric shock (IEC 60364-4-41)
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 (IEC 61429:1995)
EN 62281	Safety of primary and secondary lithium cells and batteries during transport (IEC 62281)
IEC 60050-482	International Electrotechnical Vocabulary - Chapter 482: Primary and secondary cells and batteries
IEC 60993 series	Electrolyte for vented nickel-cadmium cells