



SLOVENSKI STANDARD
SIST EN 61044:1997

01-februar-1997

Opportunity-charging of lead-acid traction batteries

Opportunity-charging of lead-acid traction batteries

Zwischenladen von Blei-Antriebsbatterien

Charge opportune des batteries de traction au plomb

Ta slovenski standard je istoveten z: EN 61044:1992

[SIST EN 61044:1997](https://standards.iteh.ai/catalog/standards/sist/11e119a1-2506-41b2-8002-c13aeb4cf9e3/sist-en-61044-1997)

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ICS:

29.220.20	Kislinski sekundarni člani in baterije	Acid secondary cells and batteries
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EUROPEAN STANDARD

EN 61044

NORME EUROPEENNE

EUROPÄISCHE NORM

October 1992

UDC 621.355.2

Descriptors: Cell or battery, lead acid battery, traction battery, charging, use

ENGLISH VERSION

Opportunity-charging of lead-acid traction
batteries
(IEC 1044:1990)

Charge opportune des batteries
de traction au plomb
(CEI 1044:1990)

Zwischenladen von
Blei-Antriebsbatterien
(IEC 1044:1990)

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This European Standard was approved by CENELEC on 1992-09-15. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 1044:1990 (Technical Report) could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 61044 on 15 September 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-09-01
- latest date of withdrawal of conflicting national standards (dow) 1993-09-01

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

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ENDORSEMENT NOTICE
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The text of the International Standard IEC 1044:1990 was approved by CENELEC as a European Standard without any modification.

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ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
254-1	1983	Lead-acid traction batteries Part 1: General requirements and methods of test	HD 465.1 S1	1986
254-2	1985	Lead-acid traction batteries Part 2: Dimensions of cells and terminals and marking of polarity on cells	HD 465.2 S1	1987

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RAPPORT
TECHNIQUE
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REPORT

CEI
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1044

Première édition
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Charge opportune des batteries de traction
au plomb

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Numéro de référence
Reference number
CEI/IEC 1044: 1990

OPPORTUNITY-CHARGING OF LEAD-ACID TRACTION BATTERIES

1 Scope and object

This Technical Report covers the "opportunity-charging" of lead-acid traction batteries, i.e. the use of free time during a working period to top up the charge and thus extend the working day of a battery whilst avoiding excessive discharge.

The object of this report is to lay down rules or recommendations for the use of opportunity-charging of traction batteries.

NOTE - When opportunity-charging enables the user to draw substantially more than 80 % of the rated capacity of the battery each day, battery-life measured in terms of energy-exchange should remain about the same. In consequence, this battery-life measured in years, can be reduced.

Opportunity-charging may result in higher working temperatures; this may further reduce battery-life. It is essential, therefore, to discuss the proposed operation with the battery manufacturer as modification of his normal guarantee may be necessary.

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2 Normative references

[SIST EN 61044:1997](#)

The following standards contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 254-1: 1983, Lead-acid traction batteries - Part 1: General requirements and methods of test.

IEC 254-2: 1985, Lead-acid traction batteries - Part 2: Dimensions of cells and terminals and marking of polarity on cells.

3 Definitions

For the purpose of this report the following definitions apply:

3.1 opportunity-charging: The use of periods of inactivity of a partially discharged battery (i.e. state of charge < 80 % of the nominal capacity) to increase its state of charge.

3.2 **regular charge:** The charge of a battery necessary to attain the state of maximum storage of electric energy (see IEC 254-1, clause 9).

3.3 **self-compensating charger:** A charger which continuously monitors the state of charge of the battery and terminates the charge when the correct amount of electric energy has been supplied, and which will only provide minimal overcharging if a fully-charged battery is connected to the charger.

3.4 **excessive discharge:** A discharge $> 80\%$ of the nominal capacity.

NOTE - The definitions 3.1 and 3.4 above are illustrated graphically in figures 1a and 1b.

4 Planning

The following points should be considered when planning to introduce opportunity-charging:

4.1 *Indications that opportunity-charging may be beneficial*

4.1.1 When the maximum permissible size of battery for the vehicle does not have enough capacity to do the work required.

4.1.2 When the operational requirements of the vehicle are such that it is impossible to predict when it will next be released for a complete recharge (e.g. places such as airports where 24 h working is the rule).

4.1.3 When a battery is close to the end of its life and the use of opportunity-charging can be shown to be maintaining its work period.

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NOTE - If the periods available for charging are of short duration and infrequent, then opportunity-charging will be of little benefit.

4.2 *Opportunity-charging should not be used*

4.2.1 When the battery is able to cope with the load without extra charge whilst operating within the battery manufacturer's recommendations.

4.2.2 When the working pattern of the battery and the charger system does not conform to the recommendations of clause 5.

5 Operational procedures

The following points should be considered when operational procedures are being generated:

5.1 Self-compensating chargers shall be preferred for use with opportunity-charging. A correctly sized battery/charger combination is essential.

NOTE - Where a known duty cycle exists, a calculation of the energy balance is recommended. It should be established that adequate charging periods are available for opportunity-charging.